STUDIES IN MALAYAN, PAPUAN, AND AUSTRALIAN MANTIDÆ.

BY MORGAN HEBARD.

During the past thirteen years the author has received by purchase from dealers in London, Paris and Berlin, several collections and numerous individual specimens of Orthoptera from the South Seas and adjacent continental areas. Recently a large number of species of Mantidæ, assembled by Mr. C. F. Baker in the Malay Peninsula, Borneo and the Philippines, have been received.

It was noted, upon assembling all of the Mantidæ represented, that a sufficient series was available to justify the undertaking of a study of the material of that family before us from the regions referred to above. Seventy-eight species, representing forty-one genera, are here treated, of which five genera and twelve species are described as new. The collections contain a very good representation, including many of the most remarkable and little known forms. Though in some of the groups only a minimum of the known species are before us, we feel that, on the whole, the collection is one of the most complete, for the Malayan region in particular, now extant in any of the world's museums.

This is in large part due to the efforts of Mr. C. F. Baker, and when we consider that he is forming collections in all orders of insects, we feel that he should be heartily congratulated on his achievements to date. It is our sincere hope that his work may continue successful and uninterrupted for many years to come.

All of the material treated in the present paper, unless otherwise assigned, is in the Hebard Collection at the Academy of Natural Sciences of Philadelphia, with the exception of duplicate specimens from Mr. Baker, of species which are not represented in his collection; these will be forwarded to him whenever desired.

We have included the species from the Malayan, Papuan and Australian regions, as some of the forms of each of these interdigitate over extensive areas with those of the regions adjacent. We would note, however, the vital importance of Wallace's Line, separating the Malayan and Papuan faunas. The great majority of species found in the Malay Peninsula, Sumatra, Java, Bali, Borneo and the Philippines, have little in common with those of

Lombok, the Timor Group, Celebes, the Moluccas, Salwatty, Borneo and the Aru, and Ké Islands, and vice versa.

The geographical distribution and affinities of the species is shown by the following table. An "a" indicates that a form of close affinity is found in the region so checked.

Name of Species	Malayan	Papuan	Australian
Paraoxypilus verreauxii Saussure	–	–	*
Amorphoscelis borneana Giglio-Tos	*	–	–
Metallyticus violaceus (Burmeister)	*	–	–
Theopompula ocularis Saussure	*	–	–
Theopompa burmeisteri (Haan)	*	–	–
Orthodera ministralis (Fabricius)	–	–	*
Bolbe pygmaea (Saussure)	–	–	*
Hapalopiza tigrina Westwood	*	–	–
Epsomantis tortricoides (Haan)	*	–	–
Tropidomantis tenera (Stål)	*	–	–
Neomantis australis (Saussure and Zehntner)	–	–	*
Kongobatha diademata new species	–	–	*
Xanthomantis flava Giglio-Tos	*	–	–
Polyacanthopus mantispoides new species	*	–	–
Sceptuchus simplex new species	*	–	–
Stenomantis novae-guineae (Haan)	–	*	a
Amantis reticulata (Haan)	*	–	–
Amantis maculata (Shiraki)	Formosa	–	–
Amantis aeta new species	*	–	–
Amantis basilana new species	*	–	–
Gonypeta borneana Giglio-Tos	*	–	–
Compsomantis semirufula (Westwood)	*	–	–
Opsomantis tumidiceps (Bolivar)	*	–	–
Euchomenella heteroptera (Haan)	*	–	–
Euchomenella molucarum (Saussure)	*	*	–
Tagalomantis manillensis (Saussure)	*	–	–
Haania lobiceps (Haan)	*	–	–
Caliris masoni (Westwood)	Oriental	–	–
Caliris elegans Giglio-Tos	*	–	–
Gilda suavis Giglio-Tos	*	–	–
Leptomantis albella (Burmeister)	*	–	–
Leptomantis fragilis (Westwood)	*	–	–
Leptomantis lactea (Saussure)	*	–	–
Leptomantis tonkinae new species	Tonkin	–	–
Aetaella bakeri new species	*	–	–
Deroplatys desiccata Westwood	*	–	–
Deroplatys truncata (Guerin)	*	–	–
Sphodropoda tristis (Saussure)	–	*	*
Sphodropoda quinquedens (MacLeay)	–	–	*
Statilia maculata (Thunberg and Lundahl)	*	*	–
Statilia nemoralis (Saussure)	*	*	–
Tenodera aridifolia (Stoll)	*	*	a
Tenodera attenuata (Stoll)	*	–	–
Tenodera blanchardi Giglio-Tos	–	*	*
Mesopteryx alata Saussure	*	–	–
Hierodula gracilicollis Stål	*	–	–
Hierodula vitrea (Stoll)	*	–	–
Hierodula venosa (Olivier)	*	a	–
Hierodula rajah Werner	–	*	–
Hierodula patellifera (Serville)	*	–	–
Hierodula aruana Westwood	–	*	–
Hierodula laevicollis Saussure	–	*	–

Hierodula obiensis new species	–	*	–
Hierodula sorongana (Giglio-Tos)	–	*	–
Hierodula denticulata (Krauss)	–	*	a
Hierodula splendida new species	–	*	a
Rhombodera extensicollis (Serville)	*	–	–
Rhombodera stalii Giglio-Tos	*	–	–
Rhombodera basalis (Haan)	*	–	–
Rhombodera valida Burmeister	*	–	–
Rhombodera saussurii Kirby	–	*	–
Archimantis latistyla (Serville)	–	–	*
Archimantis armata Wood-Mason	–	–	*
Oligomantis orientalis Giglio-Tos	*	–	–
Acromantis moultoni Giglio-Tos	*	a	–
Acromantis oligoneura (Haan)	*	*	–
Acromantis luzonica new species	*	–	–
Acromantis hesione Stål	*	a	–
Acromantis australis Saussure	a	*	–
Acromantis dyaka new species	*	a	–
Odontomantis javana javana Saussure	*	–	–
Odontomantis javana euphrosyne Stål	*	–	–
Hymenopus coronatus (Olivier)	–	*	–
Creobroter granulicollis Saussure	*	–	–
Creobroter labuanae new species	*	–	–
Creobroter meleagris Stål	*	–	–
Creobroter episcopalis Stål	*	–	–
Theopropus elegans (Westwood)	–	*	–

A Note on the Recent Revisionary Work on the Mantidæ.

The Mantidæ as a whole have never been satisfactorily revised. Of recent years, Dr. Ermanno Giglio-Tos has done much revisionary work and, as a forerunner to his monograph of the family, has published a pamphlet, giving the arrangement of the family according to his findings.[1] The work of that author to date is seriously marred by an utter lack of figures throughout, with the exception of one paper, while his generic and specific descriptions are in almost all cases deplorably insufficient. Had the studies been based on a large collection, it could be hoped that, at some future time, that author or another could more adequately diagnose the new genera and species involved. Unfortunately the material used as a basis for this work was gathered from many European institutions and once returned will make an adequate and comprehensive final study a most difficult matter.

Though the number of new genera described by Giglio-Tos at first glance appeared inordinately large, we believe that the great majority will prove valid. It is clear that the generic units, as previously recognized in the Mantidæ, were composed of many distinct forms, and the separation of these into logical units constitutes the most useful portion of his contributions.

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[1] Bull. Soc. Ent. Italiana, XLIX, pp. 50 to 87 (1919).

Of the new species described by that author, we regret to state that a considerable percentage appear to be of doubtful validity. In some cases mere color variants have been described as new species. Geographic racial differentiation is ignored. It is clear that we here have another example of the specialist whose activities have apparently been wholly, or in large part, limited to the study of museum specimens.

The situation shows the absolute necessity at the present time, of the specialist, working on a particular group of insects, to have a first hand knowledge of the forms in nature. The significance of differences observed, whether due to individual size or color variation, or genetic factors, or to local environmental influences, or to geographic distribution and in this respect whether or not of racial value, or constituting valid diagnostic criteria of specific or generic value, can otherwise hardly be fathomed.

In making this statement the author is not influenced by prejudice, but is speaking from experience, acquired through many months of field work in regions where a considerable number of species of the Mantidæ occur.

Systematic Treatment.

I. PERLAMANTINÆ[2].

1st Group, Paraoxypili.

Paraoxypilus verreauxii Saussure

1870. *P[araoxypilus] verreauxii* Saussure, Mélang. Orth., I, p. 305. [♂, Tasmania.]

Townsville, Queensland, Australia, 2 ♂.

This remarkable little insect has been further recorded from southern Australia by Saussure and from Peak Downs, Queensland, Australia, by Sjostedt. The pronotum is figured by Giglio-Tos.[3]

2d Group, Perlamantes.

Amorphoscelis borneana Giglio-Tos.

1913. *A[morphoscelis] borneana* Giglio-Tos, Gen. Ins., Fasc. 144, Orth., Mantidae, Perlamantinae, p. 9. [♀, Borneo.]

Jelabu, British Straits Settlements, Malay Peninsula, 1 ♀.

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[2] The subfamilies and groups as given by Giglio-Tos are indicated throughout the present paper. This does not mean that we indorse his system. We do believe, however, that it is the most satisfactory to date and should be followed pending further comprehensive revisionary work.

[3] Gen. Ins., Fasc. 144, Orth., Mantidæ, Perlamantinæ, pl. figs. 2a and 2b (1913).

This specimen agrees fully with the original description, except that the pronotum is two millimeters in length, one millimeter less than the pronotal length given by Giglio-Tos.[4]

II. Eremiaphilinæ.

1st Group, Metallytici.

Metallyticus violaceus (Burmeister).

1838. *M[etalleutica] violacea* Burmeister, Handb. Ent. II, Abth. II, pt. I, p. 527. [Java.]

Zamboanga, Zamboanga, Mindanao, Philippine Islands, (from C. F. Baker), 1 ♀.

In the present specimen the head is without pale markings; the pronotum, in addition to two pale maculations meso-laterad at the caudal margin, has the medio-longitudinal sulcus pale from the transverse sulcus over half the distance to the caudal margin.

Though this species is remarkable in being strikingly metallic in general coloration, it is by no means as brilliant as other species of the genus.

4th Group, Humbertiellæ.

Theopompula ocularis (Saussure).

1872. *H[umbertiella] ocularis* Saussure, Mélang. Orth., II, p. 16. [♀, Borneo.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

Labuan Island, British North Borneo, 1 ♀.

This and the following species so closely resemble species of the American genus *Gonatista,* that we believe they will be found to have very similar habits, living on the trunks of trees, about which they run with amazing rapidity.

Theopompa burmeisteri (Haan).

1842. *M[antis] (Mantis) burmeisteri* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 80, pl. XVI, figs. 3 and 4. [♂, ♀, Java.]

1917. *T[heopompa] borneana* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVIII, p. 85. [♂, ♀, Borneo.]

Giglio-Tos states that his *borneana* is very similar to *burmeisteri* and gives certain features of coloration as the important differential characters. The first of these, costal area of female tegmina as transparent as in male, is apparently of no value, this being clearly shown by Haan's figures to be true for *burmeisteri.* In the other

[4] This may be due to a typographical error. The genus is described by that author as having the pronotum broader than long, but the dimensions for *borneana* are given as length 3, width 2.5 mm.

features of coloration, it would appear that a certain amount of differentiation in Giglio-Tos' material is clearly ascribable to individual variation. The present specimens all have the internal spines of the cephalic tibiæ black at their apices. We therefore do not feel justified in recognizing *borneana* either as a valid species or race.

Jelabu, British Straits Settlements, Malay Peninsula, 1 ♂.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂, 1 ♀.

The present specimens measure as follows: length of pronotum ♂ 8.8 to 9, ♀ 13.9; width of pronotum ♂ 6 to 6.4, ♀ 9; length of tegmen ♂ 40.8 to 41, ♀ 53 mm.

The two males at hand, though from very widely separated localities, are extremely similar, that from Jelabu slightly the paler in general coloration and very slightly the larger.

10th Group, Orthoderæ.

Orthodera ministralis (Fabricius).

1775. *M[antis] ministralis* Fabricius, Syst. Ent., p. 277. [Australia.]

Queensland, Australia, 1 ♀.

III. Iridopteryginæ.

2nd Group, Iridopteryges.

Bolbe pygmaea (Saussure).

1871. *A[meles] pygmaea* Saussure, Mélang. Orth., I, p. 423. [♂. North Australia.]

Queensland, Australia, 1 ♂.

The present species, one of the smallest of the described forms of the Mantidæ, is now known to have a wide distribution on the Australian Continent. The present specimen measures as follows: length of body 12,[5] length of pronotum 2.4, width of pronotum 1.2, length of tegmen 9.8, width of tegmen 2.7 mm.

Hapalopeza tigrina Westwood.

1889. *Hapalopeza tigrina* Westwood, Rev. Ins. Fam. Mantidarum, p. 37, pl. XIV, fig. 13. [Singapore, [Straits Settlements]; Sarawak, [Borneo]; Sumatra.]

Sandakan, British North Borneo, (from C. F. Baker), 2 ♂, 5 ♀.

Labuan Island, British North Borneo, 2 ♀.

The present is the only known species of this Asiatic genus found in Borneo.

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[5] Somewhat crushed out, this dimension having probably been less in life.

3d Group, Tropidomantes.

Epsomantis tortricoides (Haan).

1842. *M*[*antis*] (*Mantis*) *tortricoides* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 82, pl. XVIII, fig. 4. [♂, Java.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

This species has been referred to *Platycalymma* by Westwood[6] and to *Ecinophlebia*, with a query by Saussure and Zehntner.[7] Giglio-Tos[8] has erected the genus *Epsomantis* to include this one species, considering it separable from the Madagascar species of the other two genera by the tegmina having the costal area near the base much broader, nearly equalling half the total tegminal width, the pronotum with prozonal margin dilated and submembraneous and the cephalic tibiæ provided with eight external spines. This latter feature is shown by Haan's figure, but we believe that the number was actually different, as well as features of venation. We are led to suppose that the specimen before us represents the first individual of this extraordinary insect taken since the type.

In consequence, we would note the following features, some of which we believe to be of generic diagnostic value, in addition to those given by Giglio-Tos. We therefore retain *Epsomantis* as a valid genus.

Pronotum with lateral margins microscopically denticulate, dorsal surface with a medio-longitudinal depression, in which, on the shaft, a very delicate and smooth carina is developed.[9] Tegmina with humeral vein with one conspicuous branch distad, median vein paralleling humeral vein to median portion, then strongly diverging from it, discoidal vein with four distinct branches, which themselves branch near the sutural margin. Cephalic femora with ventro-external margin bearing five spines, in addition to the small genicular spine, with a series of minute spinulæ intercalated between these; ventro-internal margin with the following formula of spines, ıIıIıIıIıIıIıI, the long spines all being directed inward, the last being a small genicular spine. The tibiæ have fourteen to fifteen external

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[6] Rev. Ins. Fam. Mantidarum, p. 40, (1889).
[7] In Grandidier, Hist. Nat. Madagascar, XXIII, Orth., p. 177, (1895).
[8] Bull. Soc. Ent. Italiana, XLVI, p. 47, (1915).
[9] This violates the group character given by Giglio-Tos, "metazona del pronoto munita di una carena ben distinta che si estende in parte anche sulla prozona." We are, however, satisfied that this remarkable species is an aberrant member of the Tropidomantes.

and fifteen to sixteen internal spines, which increase regularly in size and length distad.[10]

In life the specimen was probably a very delicate pale green. The body and limbs have now faded to yellowish, except for three small and regularly placed dots on the external face of each cephalic femur, which are very rich green. The tegmina are very pale lumiere green. Mesad across the humeral field is a narrow irregular transverse band, formed by a faint tracery along the veinlets of this area of vinaceous; there is also a minute fleck of the same meso-proximad in the humeral field.

Though Haan's figure shows fewer spines and a much more simple tegminal venation, we believe that these differences are wholly due to a certain amount of inaccuracy on the part of the artist.

Tropidomantis tenera (Stål).

1858. *Mantis tenera* Stål, Kongl. Svenska Freg. Eugenies Resa, Ins., p. 314. [♀; Singapore, [Straits Settlements].]

Zamboanga, Zamboanga, Mindanao, Philippine Islands, (from C. F. Baker), 1 ♀.

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 2 ♀.

Penang Island, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂, 2 ♀.

The Zamboanga and Penang females are slightly larger, with pronotum slightly heavier, than those from the type locality.

Neomantis australis (Saussure and Zehntner).

1895. *Tropidomantis australis* Saussure and Zehntner, in Grandidier, Hist. Nat. Madagascar, XXIII, Orth., p. 169. [♂; Queensland, Australia.]

Townsville, Queensland, Australia, 2 ♂.

The very broad oval, pale green tegmina give this little insect a distinctive appearance. The minute black dots on the costal margin of the tegmina are an interesting feature.

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[10] We would here note that the spine formulae of the cephalic femora and tibiae is most important in the Mantidæ and not always easy to record accurately. For the femora we find on the ventro-external margin a few, usually long, spines; on the ventro-internal margin more numerous spines, usually alternating in length proximad, and in addition to these should be noted separately the usually minute genicular spines, when present, and the very important discoidal spines, which proximad run in an oblique line across the ventral surface of the femur. Three or four of these occur and it is particularly important not to confuse one or two of these nearest the margin with the marginal spines proper. In the tibiae the formulae are more simple. All of the external spines must be counted, but in counting the ventro-internal spines great care must be taken not to include the apical claw, which is much larger and longer than any spine and projects from the dorso-distal portion of the tibia, but might easily be mistaken for the terminal spine of the ventro-internal series.

KONGOBATHA[11] new genus.

In the arrangement of the Mantidæ we place this genus after *Neomantis*. From all known genera of the Tropidomantes the present is separated by the strongly elevated lateral portions of the vertex and the slender pronotum, which shows a minimum development of the medio-longitudinal carina;[12] in the majority of genera of the Tropidomantes this carina being very decided and lamellate. The insect is much more attenuate than in *Tropidomantis* and consequently very much more attenuate than in *Neomantis*, but the spination of the ventro-internal margin of the cephalic femora and very elongate supra-anal plate agrees instead with the latter genus.

Genus monotypic. GENOTYPE.—*Kongobatha diademata* here described.

Generic description (from female, male unknown).—Size small, normal for the Tropidomantes. Form slender, tegmina and wings much narrower than in *Tropidomantis*, narrower even than in *Xanthomantis*, with apices acute and sharply rounded. Head much less transverse than in *Tropidomantis* and *Neomantis*, facial scutellum very strongly transverse, occiput distinctly quadrisulcate, the juxta-ocular portions raised high above the eyes in blunted angulate projections, the median sections much lower, somewhat swollen but with dorsal margin transverse.[13] Ocelli moderately well developed, forming a triangle very slightly broader than high. Pronotum slender, slightly longer than cephalic coxa, margins smooth; supra-coxal expansion very weak with its margins very feebly and broadly convex; medio-longitudinal carina decided, but not as strongly developed or lamellate as is usual in the *Tropidomantes*, completely severed by the supra-coxal transverse sulcus, disappearing mesad on collar of pronotum. Tegmina with veins as characteristic for the group; false veins regular, not irregular as in *Tropidomantis* or very irregular as in *Neomantis;* marginal field very narrow, with its immediate margin opaque; other portions of tegmina and wings hyaline. Wings projecting slightly beyond tegmina. Cephalic coxa with margins unarmed but showing a few very minute hair follicles, which are more numerous along the straight dorsal margins of the cephalic femur. Cephalic femur

[11] One of the aboriginal tribes of Queensland.
[12] Excepting, as to this feature, the aberrant *Epsomantis tortricoides* (Haan).
[13] Evidently a high specialization of the type shown by *Tropidomantis*.

slender, with unguicular sulcus at end of proximal two-fifths; three discoidal spines; four spines on ventro-external margin and an additional small spine on external and internal genicular lobe; between but inside the first two spines of the ventro-external margin is a small round concavity into which, when the limbs are flexed, fits the apex of the terminal spine of the ventro-external margin of the cephalic tibia; spine formula on ventro-internal margin IIıIIıIIıIIıI. Cephalic tibia with ventro-external margin armed with nine spines, increasing in length distad, except that the second is longer than the third and the fourth longer than the fifth; ventro-internal margin armed with eleven spines which increase regularly in length distad. Caudal metatarsus very slightly longer than the combined length of the succeeding tarsal joints. Cerci absent in specimen at hand. Supra-anal plate very elongate.

Kongobatha diademata new species. (Plate I, figures 1 and 2.)

The form of the specialized vertex is a very distinctive feature in this species. The insect does not look like the other species of the Tropidomantes and it is only when closely examined that the affinity is apparent, the head and pronotum being then seen to show only a distinctive development from the same type found in *Tropidomantis*.

Type.— ♀ ; Queensland, Australia. [Hebard Collection Type No. 518.]

In addition to the features given in the generic description, we would note the following. Facial scutellum five times as broad as high. Short, somewhat irregular, oblique veinlets connect the marginal and mediastine veins of the tegmina and of the wings proximad only. Stigma indicated as a colorless line running from the discoidal to near the humeral vein, beyond which from a number of irregularly confused veinlets springs the median vein. Wings with distal portion of anterior field as long as its basal width, discoidal vein triramose. Cephalic femora with ventral surface supplied with hairs and within the marginal spines minutely and irregularly denticulate; spines of ventro-internal margin extend to opposite distal margin of femoral brush, the first two and the last of the longer spines exceeding the other longer spines very slightly in length. Supra-anal plate fully twice as long as basal width, lateral margins weakly concave convergent proximad, thence straight in the gradually narrowing slender distal portion to the acute apex, which extends well beyond the comparatively elongate subgenital plate.

Body and limbs immaculate; probably discolored,[14] yellowish brown. Eyes blackish chestnut brown. Tegmina and wings hyaline, strongly iridescent, except very narrowly along the costal margin of the tegmina, which portion, not more than a third the distance between the marginal and mediastine veins proximad, is opaque, yellowish brown.

Length of body 24.5, length of pronotum 5.7, length of pronotal collar 2, greatest width of pronotum 1.8, length of tegmen 16.5, width of marginal field of tegmen .8, length of wing 16.3, length of cephalic femur 5.8, length of caudal metatarsus 1.7 mm.

The type of this interesting species is unique.

Xanthomantis flava Giglio-Tos.

1915. *X[anthomantis] flava* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVI, p. 53. [♀, Borneo.]

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♀.

The striking yellow coloration of the entire marginal fields of the tegmina and of the distal portion of the entire marginal fields of the wings, which are otherwise clear hyaline and iridescent, gives this specimen a close resemblance to individuals of certain species of the Neuropteroid genus *Mantispa*. Small lateral flecks of purple are found on the facial scutellum, this color appearing as a hair-line, margining the opaque marginal portions of the tegmina and wings.

The strong lamellate medio-longitudinal carina of the pronotum is completely and suddenly cleft by the supra-coxal transverse sulcus, which carina only extends a brief distance on the collar in the specimen before us. Counting from the base to the apex of the cephalic tibia, the spines of the ventro-external margin increase in length distad, except the second and sixth, which are very long and the tenth which is slightly longer than the eleventh and last spine. Though the cerci are damaged, the last joint is seen to be nearly five times as long as its greatest width, the preceding joints slightly longer than wide. Giglio-Tos has not mentioned this feature and the spine formula for the cephalic tibia would appear to have been counted from the apex proximad, the type having two instead of three small spines between the second and sixth.

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[14] The feet are greenish, which leads us to believe that, in life, this insect may be pale green.

POLYACANTHOPUS new genus.

This genus shows very close affinity to *Xanthomantis* in general form and tegminal and wing structure, but differs particularly in the different ocellar arrangement, weaker armament of the ventro-internal margins of the cephalic femora, remarkably heavy armament of the cephalic tibiæ and in the percurrent pronotal carina.

The armament of the cephalic tibiæ is heavier than in any species of the Mantidæ we have ever seen.

Genus monotypic. GENOTYPE.—*Polyacanthopus mantispoides* here described.

Generic Description.—Size small, normal for the Tropidomantes. Form slender, tegmina and wings narrower than in *Tropidomantis*, but with apices rather broadly rounded, similar to the type developed in *Xanthomantis* and suggesting the type found in the widely separated genera *Leptomantis* and *Aetaella*. Head broad, facial clypeus transverse with dorsal margin scarcely defined, occiput scarcely raised above eyes, showing a broad and weak concavity mesad, these features as in *Xanthomantis*. Ventral ocellus smaller than the dorsal pair of ocelli and placed at a slightly greater distance from them than the width between them. Pronotum slender, slightly longer than the cephalic coxa, margins smooth, supra-coxal expansion weak with its margins broadly convex, medio-longitudinal carina heavy, lamellate, percurrent, completely severed by the transverse supra-coxal sulcus; in all these features agreeing with *Xanthomantis*, except that in that genus the carina disappears before reaching the cephalic margin of the collar. Tegmina and wings narrow, with venation as characteristic for the group, clear hyaline except external section of marginal field of tegmina and distal portion of external section of marginal field of wings, which very narrow portions are opaque, wings projecting well beyond tegmina; these features giving to the insect a decided general resemblance to *Xanthomantis* and causing individuals of these genera to have a close superficial resemblance to certain Neuropteroid genera of the subfamily Mantispinae. Cephalic coxa with margins smooth. Cephalic femur slender, dorsal margin straight and smooth, unguicular sulcus near base; three discoidal spines; ventro-external margin with four elongate and slender spines, between but slightly outside of the first two of which is a small round concavity, into which fits the apex of the terminal spine of the ventro-external margin of the cephalic tibia when the limbs are flexed, genicular areas unarmed; spines on ventro-internal margin fewer and not

alternating in length to the marked degree found in *Xanthomantis*. Cephalic tibia with ventro-external margin armed with very numerous (twenty-five and twenty-six) and closely placed spines increasing in length distad but with two in the series and two before the very elongate terminal spine much more elongate; ventro-internal margin armed with very numerous (twenty-five) and closely placed spines, elongate and slender and increasing slightly in length distad, except the proximal spines which are very small. Caudal limbs absent from the specimen at hand. Cerci slender, moderately elongate, terminal joint very elongate oval; these appendages much as in the specimen of *Xanthomantis* before us. Apex of abdomen crushed in specimen under consideration.

Polyacanthopus mantispoides new species. (Plate I, figures 3 and 4.)

The present species shows a very close general resemblance to *Xanthomantis flava* Giglio-Tos; having, however, many important differences as given in the generic description.

Specialization, considering the astonishingly great numerical abundance of spines on the cephalic tibiæ, would appear to have reached a condition almost detrimental to the effectiveness of the grasping limbs in the present species.

Type.—♂; Sandakan, British North Borneo. (From C. F. Baker.) [Hebard Collection Type No. 517.]

In addition to the features given in the generic description, we would note the following for this remarkable species. Dorsal pair of ocelli very large, ventral ocellus large. Occiput, immediately above these, showing a small but well defined convexity, with a minute but distinct transverse carina and a vertical carina extending briefly dorsad, the juncture of these carinae forming a weak median projection. Internal margins of eyes concave and weakly divergent dorsad.[15] Medio-longitudinal carina of pronotum strongly developed and lamellate, as is characteristic of the group Tropidomantes. Short, straight, transverse veinlets occur in the opaque portion of the marginal fields of the tegmina and wings, connecting the marginal and mediastine veins. Stigma subobsolete. Apex of abdomen crushed. Cercus considerably less than twice as long as exposed portion of subgenital plate, segments increasing in length

[15] In the female of *X. flava* at hand these margins are feebly concave and rather decidedly divergent dorsad, while in that specimen a minute but well developed tubercle is found on each side between the antennal sockets and the ocular margins.

distad, penultimate segment three-quarters as long as wide, last segment elongate ovate, three times as long as its greatest width, with apex moderately acute. Subgenital plate with lateral margins thickened, convergent, very feebly convex, to near median portion where these thickened portions terminate, the brief meso-distal portion of the margin weakly concave between the ridges which indicate style bases, no styles being developed in this specimen. Cephalic femur with ventro-internal margin armed with (twelve and thirteen) spines which alternate slightly in length,[16] except in area below femoral brush, which portion of the margin is supplied with two or three minute spinulæ (not included in the above count). Cephalic tibia with the more elongate spines of the ventro-external margin the ninth, seventeenth, twenty-fourth and twenty-fifth on one limb, the eighth, sixteenth, twenty-third and twenty-fourth on the other limb,[17] not including the longer distal spine of this margin.

Body and limbs immaculate; apparently discolored, yellowish brown. Eyes blackish chestnut brown. Tegmina and wings clear hyaline, very strongly iridescent, except narrow marginal area between marginal and mediastine veins, which in the tegmina is entirely opaque, colonial buff, in the wings similarly opaque, colonial buff, distad in this area.

Length of body 21, length of pronotum 5, length of pronotal collar 1.8, greatest width of pronotum 1.8, width of marginal field of tegmen .9, length of wing 15.5, length of cephalic femur 5.3 mm.

The type of this singular species is unique.

4th Group, Nanomantes.

SCEPTUCHUS[18] new genus.

The present genus is apparently nearest in relationship to *Nanomantis* Saussure. It is seen to differ from *Nanomantis* in the more even contour of the occiput with juxta-ocular swellings very feebly indicated, weakly convex, carinate shaft of pronotum, smooth

[16] So numerous and elongate are the spines of the opposed margin of the cephalic tibia when the limb is flexed that the present specimen shows the majority of the longer spines of this margin to have been broken, apparently by contact with these.

[17] The difference indicated here for the two limbs is due to the fact that one limb has one less of the minute proximal spines than the other.

[18] Wand Bearer, in allusion to the manner in which the Mantidæ point with their cephalic limbs.

cephalic coxæ and apparently[19] fewer spines on the ventro-internal margin of the cephalic femora.

Genus monotypic. Genotype.—*Sceptuchus simplex,* here described.

Generic Description.—Size small, normal for the Nanomantes; form slender. Head decidedly transverse; facial scutellum very strongly transverse; occiput quadrisulcate, these sulci broad and shallow, the dorsal outline of the sections thus formed transverse, the juxta-ocular sections showing a very broad and feeble convexity. Ocelli moderately well developed, the dorsal pair vertical, very elongate oval in form, above which is a transverse and very delicate carina. Pronotum slender, slightly longer than cephalic coxa, margins smooth, supra-coxal expansion moderately developed with its margins moderately convex, medio-longitudinal carina distinct on shaft of pronotum, lying in a broad medio-longitudinal depressed area, absent on collar. Tegmina elongate and moderately narrow with apices rather broadly rounded, entirely hyaline, median and discoidal veins connected by an oblique hyaline linear stigma, transverse sigmoid veinlets broken mesad by delicate false veins only in distal portion of tegmina. The wings do not project beyond the tegmina. Supra-anal plate triangularly produced, not as long as proximal width. Cerci simple, cylindrical, tapering to acute apices. Coxa with margins smooth. Cephalic femur slender, with dorsal margin straight, pinched into a moderately decided ridge, unguicular sulcus at end of proximal two-fifths, three discoidal spines, four spines on ventro-external margin and an additional small spine on each genicular lobe, spine formula of ventro-internal margin ɪIɪIɪIɪIɪIɪɪɪI. Cephalic tibia with ventro-external margin armed with seven spines, increasing in length distad, of which the first is decidedly the smallest and separated a greater distance from the second than the intervals between the others; ventro-internal margin armed with eleven spines which increase in length distad. Caudal metatarsus extremely elongate and slender, over twice as long as combined length of succeeding tarsal joints.

Sceptuchus simplex new species. (Plate I, figures 5 and 6.)

The present species apparently shows nearest affinity to *Nanomantis australis* Saussure.[20] In addition to the differential features

[19] Saussure gives for *Nanomantis australis*, the genotype, seven spines on the ventro-external margin of the cephalic femora in his key. In his supplementary diagnosis, however, he gives seven spines for that margin and ten for the ventro-internal margin, leaving some doubt as to the accuracy of this count.

[20] Mélang. Orth., I, pp. 264 and 435, pl. VII, figs. 64, 64a, 64b, (1870 and 1871).

given in the generic diagnosis, we would note that the present species appears to differ from all others, assigned to the group Nanomantes by Giglio-Tos, in the simple immaculate coloration of limbs and organs of flight.

Type.—♂; Singapore, British Straits Settlements, Malay Peninsula. (From C. F. Baker.) [Hebard Collection Type No. 519.]

In addition to the characters described in the generic treatment, we would give the following. Facial scutellum five times as broad as high; dorsal margin weakly defined, transverse mesad, oblique laterad. Antennæ and costal margins of tegmina microscopically ciliate. Short, straight, oblique or vertical veinlets connect the marginal and mediastine and mediastine and humeral veins of the tegmina and wings. Cephalic femur with ventral surface supplied with hairs and within the external spines somewhat angulately ridged and denticulate; ventro-internal margin with spines extending to opposite distal margin of femoral brush, alternating long and short, except the three successive smaller spines beneath femoral brush, the elongate terminal spine longer than any of the others. Supra-anal plate triangular, with apex rather broadly rounded. Subgenital plate with lateral portions narrowly curved upward; dextral portion evenly and weakly convex, sinistral portion straight in proximal half, then in remaining portion similarly convex and convergent with dextral portion; at the apices of these margins are situated minute styles, about three times as long as broad, separated by a brief interval, in which median portion the plate is very thin with margin angulate emarginate at slightly less than ninety degrees.

Body and limbs immaculate, pale yellowish brown, probably pale green in life, as is indicated by the presence of a few minute irregular green patches. Eyes blackish chestnut brown. Tegmina and wings hyaline, iridescent, almost clear, showing an exceedingly faint tinge of yellowish brown. Humeral vein and both median and discoidal veins, as far as the colorless stigma, purplish vinaceous.

Length of body 18.5, length of pronotum 5, length of pronotal collar 1.8, greatest width of pronotum 1.7, length of tegmen 14.7, width of tegminal marginal field .8, length of wing 13.7, length of cephalic femur 5.3, length of caudal metatarsus 4 mm.

5th Group, Stenomantes.

Stenomantis novae-guineae (Haan).

1842. *M[antis]* (*Mantis*) *novae-guineae* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 76, pl. XVII, fig. 3. [♀, New Guinea.]

Fakfak, Dutch New Guinea, 1 ♀.

The peculiar, half-atrophied organs of flight and evenly swollen supra-coxal expansion with deep sulci latero-cephalad are striking features in this long and very slender insect.

Haan's figure is not as good as is usual in that work, the color pattern and contour being indistinct and particularly that of the supra-coxal expansion being apparently underestimated.

The tegmina are glassy, heavily suffused with blackish mars violet in the present specimen. Length of body 45, length of pronotum 17.4, greatest width of pronotum 3.1, least width of shaft of pronotum 1.2, length of tegmen 15.3, width of tegminal marginal field 1.2, length of caudal femur 17.8 mm.

IV. Amelinæ.

2d Group, Gonypetae.

Amantis reticulata (Haan).

1842. *M[antis]* (*Oxypilus*) *reticulata* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 87, pl. XVII, fig. 9. [♂, ♀; Krawang, [Java].]

1915. *A[mantis] gestri* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVI, p. 154. [♂; Si-Rambe and Pangherang-Pisang, Sumatra.]

Though a meagre four-line description alone is given for *gestri* Giglio-Tos, it is sufficient to show that the features of difference are quite inadequate to warrant nominal recognition of any kind. The present series shows that the cephalic metatarsi in this species are entirely dark or dark only at the distal extremities, this a feature of individual variation, the intensive dark condition occurring, however, more often in the male sex.

Kelantan, Siam, 1 ♀.

Island of Penang, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 2 ♂.

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 2 ♂, 3 ♀.

Palabuan, southern Java, (from H. Fruhstorfer), 1 ♀.

Labuan Island, British North Borneo, 1 ♂, 2 ♀.

We find that in this species, genotype of *Amantis* by original designation, the cephalic femora have five ventro-external spines

(including the minute genicular spine), the cephalic tibiæ ten ventro-external spines; Giglio-Tos gives nine spines for the ventro-external margin of the cephalic tibiæ in his generic diagnosis.

Amantis maculata (Shiraki).

1911. *Gonypeta maculata* Shiraki,[21] Annot. Zool. Japonensis, VII, p. 318. [♂, ♀; Shizuoka, Japan; Taihoku and Taipin, Formosa.]

Koonnaniu, Formosa, September 24, 1906, 1 ♀.

The present species is clearly a depauperate derivative from the same stock as *A. reticulata*. In *maculata* the cephalic tibiæ have the ventro-external margins armed with eleven spines.

Amantis aeta[22] new species. (Plate I, figure 7 and plate II, figure 9.)

This species is one of the least distinctively marked forms of the genus. Except for a dark brown suffusion distad on the ventral surface of the cephalic femora, the body and limbs show no striking markings, only in the female do less decided maculæ of dark brown occur as well ventro-distad on the internal faces of the cephalic coxæ and at the unguicular sulcus of the cephalic femora.

The species furthermore apparently differs from all others in having the tegmina and wings immaculate, clear hyaline in the males; hyaline but very faintly tinged with yellowish brown in the females, this much stronger in the marginal field of the tegmina and appearing distad as a succession of small flecks on the costal margin of the wings, with stigma colorless in both sexes.

Type.—♂; Mount Banahao, Island of Luzon, Philippine Islands. (From C. F. Baker.) [Hebard Collection Type No. 520.]

Size slightly larger, form somewhat more slender, with tegmina and wings more elongate than in the genotype, *A. reticulata*. Head generally as in that species, with occiput lacking sulci and weakly convex in transverse dorsal outline, differing from *reticulata* in having the triangle formed by the ocelli slightly broader than high and in having the facial scutellum broader, about three-fifths as high as greatest width. Antennæ ciliate. Pronotum very similar to that of *reticulata*, but appreciably more slender, with narrowing of supra-coxal expansion cephalad not as decided; medio-longitudinally very weakly sulcate with a very feeble carina indicated on shaft as in *reticulata*, supra-coxal expansion and transverse supra-

[21] We are unable to determine whether Shiraki's references are to actual publications.

"*Gonipeta maculata* Shiraki, Matsumura, 1907, Ekichiu-Mokuroku.
Gonipeta nawai Shiraki, 1908, Konchiusekai."

[22] The Aetas, or Negritos, are the aborigines of the Philippines.

coxal sulcus decided, but not as decided as in that species; shaft slightly less than one and one-half times as long as neck; lateral margins of pronotum lamellate and microscopically denticulate, these denticulations the bases of minute hairs as in *reticulata*. Tegmina and wings with venation and costal margins ciliate as in *reticulata*, tegmina broadening distinctly distad. Supra-anal plate roughly triangular, length less than half basal width, apex broadly rounded. Cerci small, slender, with joints bead-like, tapering to acute apex. Subgenital plate with lateral margins weakly convex convergent to styles, which are similar, slender, cylindrical, about four times as long as wide, separated by an interval equalling the length of one of them, the margin of which is transverse. Limbs as in *reticulata*. Cephalic coxæ unarmed, with mere traces of denticulation. Cephalic femora heavy, with dorsal margin straight, unarmed, unguicular sulcus two-fifths distance from base to apex; four discoidal spines, of which the first is minute; four heavy spines on ventro-external margin, with minute blunt projections on ventral face, a few of which are situated between the more distal of these spines, and with an additional small spine on each genicular lobe; spines of ventro-internal margin showing the following formula IIIIIIIIIIII, of the longer of which the first and last are decidedly more elongate than the others. Cephalic tibiæ with ventral margins bearing (nine to ten) external and (eleven to twelve) internal, rather heavy spines, which increase regularly and gradually in length distad. Caudal metatarsus approximately one and one-half times length of succeeding tarsal joints.

Allotype.— ♀ ; same data as type. [Hebard Collection.]

Similar to the male, differing in the following features: Size larger, form slightly more robust. Ocelli proportionately not as large. Facial scutellum more transverse, height very slightly more than half basal width.[23] Cephalic coxæ with minute, microscopic denticulations, the bases of hairs. Cephalic femora with denticulations of ventral surface heavier. Supra-anal plate short, triangular in general outline, reaching to base of valves of subgenital plate, dorsal surface convex mesad, angulate concave along margins. Subgenital plate as in this sex of *reticulata*.

Both sexes yellowish brown in general coloration.[24] Male immaculate, except for a dark brown suffusion ventro-distad on the

[23] The dorsal margin of the facial scutellum is seen in the series to vary from very weakly convex, as in *reticulata*, to very broadly obtuse-angulate.

[24] Probably very pale green in life, as is indicated in several specimens by small areas where the chlorophil has settled in drying.

cephalic femora, which spreads from the ventral surface over the sides of the adjacent genicular lobes, and cephalic metatarsus also suffused at distal extremity with dark brown. Tegmina and wings transparent, moderately iridescent, clear hyaline. Three of the four males from Mount Makiling have the facial scutellum suffused with dark vinaceous.

The female, in addition to the dark brown suffusion for the male, has the cephalic coxæ ventro-distad showing a large dark brown suffusion, a small similar suffusion on the distal margin of the unguicular sulcus and traces of the same on the external genicular lobes of the cephalic femora and on the cephalic tibiæ mesad on each side and at the base of the metatarsus. The tegminal and wing coloration is described for this sex in the introduction to the species.

We would note that, except for the heavy dark marking distad on the ventral face of the cephalic femora, all of the darker suffusions found in the sexes of this species probably disappear completely in individuals of recessive coloration.

Measurements (in millimeters).

	Length of body.	Length of pronotum.	Width of pronotum.	Length of tegmen.	Greatest (distal) width of tegmen.
♂					
Mt. Banahao, *type*.....	16.3	3.8	1.9	15.7	4.3
Mt. Makiling, *paratype*..	16.	3.7	1.9	15.3	4.2
Davao, *paratype*.....	15.3	3.3	1.7	13.7	4.
Davao, *paratype*.....	15.8	3.7	1.9	14.8	4.1
Zamboanga, *paratype*....	16.3	3.8	1.9	14 7	4.3
♀					
Mt. Banahao, *allotype*....	19	4.2	2.4	17.7	5.2

In addition to the described pair, the following paratypes are before us:

Mount Makiling, Island of Luzon, Philippine Islands, (from C. F. Baker), 4 ♂.

Paete, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

Dapitan, Misamis, Island of Mindanao, Philippine Islands, (from C. F. Baker), 1 ♂.

Davao, Davao, Island of Mindanao, Philippine Islands, (from C. F. Baker), 2 ♂.

Zamboanga, Zamboanga, Island of Mindanao, Philippine Islands, (from C. F. Baker), 1 ♂.

Amantis basilana new species. (Plate I, figures 8 and 9.)

This species is closely related to *A. aeta* here described, differing in the proportionately slightly broader head, with distinctly more transverse facial scutellum, slightly more proximal unguicular sulcus, more decided green coloration[25] and distinctly though delicately marked pronotum and cephalic tibiæ but immaculate cephalic femora.

Type.—♂; Island of Basilan, Zamboanga District, Philippine Islands. (From C. F. Baker.) [Hebard Collection Type No. 521.]

Compared with the male of *aeta*, this individual is seen to differ in the following characters, as well as in important features of coloration. Head proportionately distinctly broader. Ocelli smaller and arranged in a much more transverse triangle, almost twice as broad as high. Facial scutellum with height very slightly less than half basal width, dorsal margin weakly convex. Pronotum very similar to that of *aeta*, except that the medio-longitudinal sulcation is weakly indicated only at the supra-coxal expansion, the feeble carina of the shaft obsolete. Tegmina and wings as in that species, except that the tegmina widen very slightly distad, less so than in *aeta*. Genitalia damaged. Armament of femora and tibiæ as described for *aeta*. Caudal metatarsus as in that species.[26]

Allotype.—♀; same data as type. [Hebard Collection.]

Compared with the female of *aeta*, this specimen is found to agree closely, differing in the following respects, as well as in distinctive features of coloration. Head proportionately distinctly broader. Ocelli smaller and arranged in a much more transverse triangle, fully twice as broad as high. Facial scutellum with height about two-fifths basal width, dorsal margin transverse, scarcely convex.

Both sexes oriental green in general coloration, the specimens at hand with body faded to yellowish brown. Pronotum with a very narrow but sharply defined medio-longitudinal black line on shaft, extending from base of shaft to near the transverse supra-coxal sulcus, with a minute linear parallel mark of the same color on each side near the caudal margin of the shaft. Cephalic tibiæ yellowish, with a large suffusion of blackish brown mesad on the external and dorsal faces and a fleck of the same color at the base

[25] The green in these dried specimens is pronounced, though they have evidently faded considerably in drying from the living coloration.

[26] Missing in the type, these proportions shown by a paratypic female.

of the metatarsus. Cephalic metatarsi with a distal suffusion of blackish brown and, in the male, washed with this color mesad. Genicular areas of median and caudal femora narrowly blackish brown. Tegmina and wings transparent, moderately iridescent, hyaline, tinged weakly but distinctly with oriental green. Stigma of general tegminal coloration.

The paratypic female at hand shows a recessive type of coloration in having the cephalic tibiæ with only traces of the two brown suffusions.

Measurements (in millimeters)

	Length of body.	Length of pronotum.	Width of pronotum.	Length of tegmen.	Greatest (distal) width of tegmen.
♂					
Island of Basilan, *type*.....	15	3.8	1.8	13.4	3.5
♀					
Island of Basilan, *allotype*...	18.7	4.8	2.3	16.9	4
Island of Basilan, *paratype*..	17.9	4.4	2.2	16.3	4

The single paratypic female at hand bears the same data as the type and allotype.

Gonypeta borneana Giglio-Tos.

1915. *G[onypeta] borneana* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVI, p. 155. [♂, Borneo.]

Labuan Island, British North Borneo, 2♂ .

The very dark coloration and rough surface are striking features in the present species.

V. Compsomantinæ

1st Group, Compsomantes.

Compsomantis semirufula (Westwood).

1889. *Hapalomantis semirufula* Westwood, Rev. Ins. Fam. Mantidarum, p. 37, pl. XIII, fig. 8, pl. I, fig. 1. [♂, ♀; Sarawak, Borneo.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

Males of the present species might easily be mistaken, at first glance, for representatives of the genus *Amantis* Giglio-Tos. Closer examination, however, shows the pronotum to be of an entirely different type, and the species to be, in fact, very widely separated from that genus. The superficial similarity of males of these species is even greater than that found between males of *Opsomantis tumidiceps* and those of *Amantis*, as in males of *semirufula* a weak but distinct lateral concavity of the pronotal shaft occurs.

In the male at hand the ocelli are well developed and approximate, the facial scutellum about one-third as high as its basal width,

with dorsal margin oblique and poorly defined laterad, transverse and carinate between the antennal sockets. The dark brown on the internal face of the cephalic femora is more diffuse and blurred than in Westwood's figure. The caudal metatarsus is as long as the combined length of the three succeeding joints. The genitalia are much like those of *Opsomantis tumidiceps*, except that the supra-anal plate is slightly less produced, the styles of the subgenital plate longer, fully five times as long as the greatest width, separated by a distance equal to four-fifths the length of one of the styles.

Length of body 24, length of pronotum 4.8, greatest width of pronotum 2.9, length of tegmen 21, width of tegminal marginal field 1.1, length of caudal femur 6.8, length of caudal metatarsus 2.1 mm.

Opsomantis tumidiceps (Bolivar).

1890. *Compsomantis tumidiceps* Bolivar, Ann. Soc. Espanola Hist. Nat., XIX, p. 303. [♀; Dolores, Philippine Islands.]

Mount Makiling, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

Like *Compsomantis semirufula*, this species might, at first glance, be mistaken for a member of the genus *Amantis*, but it is readily distinguished by a number of distinctive characters.

In the male before us we note that the ocelli are minute and rather widely separated, the facial scutellum distinctly less than half as high as its basal width, with dorsal margin weakly convex and showing slight irregularities. The limbs are all spotted and dotted with dark brown on both internal and external faces, a particularly large dot being situated on the internal face of the cephalic femur at the distal extremity of the unguicular sulcus. The pronotum expands evenly to the portion of greatest width, the lateral margins curving evenly thence to the cephalic extremity, with no trace of concavity anywhere, the margins are entire, without trace of denticulation. The caudal metatarsus is scarcely longer than the combined length of the two succeeding joints. The supra-anal plate is evenly rounded, its length slightly less than half its proximal width. The subgenital plate has the lateral portions narrowly turned dorsad, the lateral margins straight convergent; the styles, situated at the narrow extremity and separated by a distance little over the width of one of these, proportionately large, flattened cylindrical, as long as the supra-anal plate, four times as long as the greatest width, with apices rounded.

Length of body 18.3, length of pronotum 5, greatest width of pronotum 2.3, length of tegmen 10, width of tegminal marginal field .9, length of caudal femur 5.3, length of caudal metatarsus 1.5 mm.

IX. Thespinæ.[27]

1st Group, Euchomenellae.

Euchomenella heteroptera (Haan).

1842. *M*[*antis*] (*Mantis*) *heteroptera* Haan,[28] in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 78, pl. XVIII, fig. 1. [♂; Banjermassin, [Borneo]; Java; Tondano, Celebes.]

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂.

The present specimen agrees exactly with Haan's figure. We would note that the markings of the triannulate cephalic femora are exactly the same on the external and internal faces and that the wings are decidedly iridescent.

Euchomenella molucarum (Saussure).

1872. *E*[*uchomena*] *molucarum* Saussure, Mélang. Orth., II, p. 27. [♂, Moluccas.]

1895. *Euchomena molucarum* Saussure and Zehntner, in Grandidier, Hist. Nat. Madagascar, XXIII, p. 179. [♀, Java.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

This specimen agrees perfectly as to pronotal size and expansion with Saussure's figure, but not with the dimensions given in his description for this part. Compared with the male of *E. heteroptera* before us, the present insect is seen to differ in its smaller size, weakly maculate pronotum and tegmina,[29] cephalic tibiæ which are as dark as the pronotum, slightly blackened internally at their extremities and cephalic femora which are as dark externally, with a few irregular areas of paler shade toward the ventral margin, but which internally are brownish buff, mottled with dark brown proximad, heavily mesad, with a broad blackish annulus meso-distad, succeeded by a narrow pregenicular blackish annulus.

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[27] This name falls, as *Thespis*, properly defined, is a member of the group Musoniæ, which we believe best assigned to the subfamily Iridopterygiæ (not as understood by Giglio-Tos). We are not satisfied that this ninth division of Giglio-Tos is homogeneous or that it is worthy of recognition as a subfamily. We consequently do not propose a new name to take the place of the Thespinæ of Giglio-Tos.

[28] The female described and figured as this species, p. 78, pl. XVIII, fig. 2, represents a different species.

[29] The tegmina are well described by Saussure as "Membraneux, d'un brun-ferrugineux nuageux, marbrés de taches plus hyalines."

TAGALOMANTIS[30] new genus. (Plate I, figure 10.)

We place in this genus the single species described by Saussure as *Euchomena manillensis* and referred by Giglio-Tos, apparently without having material for comparison, to his genus *Euchomenella*. To that genus nearest affinity is shown, *Tagalomantis* differing in the following features:

Form much less attenuate, slender. Eyes smaller and not remarkably protuberant. Pronotum with medio-longitudinal carina very weak. Limbs slender, but not as exceedingly slender as in *Euchomenella*. Cephalic femora with four discoidal spines, of which the third is very elongate, but not proportionately as extremely elongate as in *Euchomenella*. Ventro-external margin of cephalic femora armed with four elongate spines and one small spine on genicular lobe; ventro-internal margin showing the following spine formula ıIıIıIıIıIıIıIıIıIıI (for *Euchomenella* ıIıIıIıIıIıIıIıI). Cephalic tibiae with ventro-external margin armed, except for a brief distance proximad, with twelve spines, which increase gradually in size distad, the proximal spines very small.

Tagalomantis manillensis (Saussure).

1870. *E*[*uchomena*] *manillensis* Saussure, Mélang. Orth., I, p. 194, pl. VI, fig. 44. [♂; Manila, [Philippine Islands].]

Los Banos, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

This specimen is apparently slightly smaller than the type, but agrees fully in all important features with Saussure's description.

We would note that the limbs are pale brown, the cephalic coxæ showing, on their external surfaces, two slightly paler indistinct transverse bands and having their apices suffused with dark brown internally. In the present specimen the cephalic femora have the discoidal spines and the longer spines of the ventro-internal margin dark brown. Length of body 50, length of pronotum 18.7, length of collar 3.8, greatest width of pronotum 2.6, length of tegmen 27.8, width of tegminal marginal field 1.8, length of cephalic femur 11 mm.

IX. Oligonicinæ.

2d Group, Haaniae.

Haania lobiceps (Haan).

1842. *M*[*antis*] (*Oxypilus*) *lobiceps* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 85, pl. XVII, figs. 4 and 5. [Juv. and ♀ (nec ♀ and ♂); Padang, [Sumatra]; Krawang, [Java].]

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[30] The Ta-Gala are the most civilized native race of the Philippines.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♀.

Giglio-Tos has recently cleared away the confusion surrounding this very remarkable little species.[31]

XVI. Caliridinæ.

1st Group, Calirides.

Caliris masoni (Westwood).

1889. *Iris masoni* Westwood, Rev. Ins. Fam. Mantidarum, p. 32, pl. I, fig. 6. [♀, India.]

Khasia Hills, Assam (?), 1 ♀.

From comparison with the female of *C. elegans* Giglio-Tos, before us, we believe that either one exceedingly plastic species may be represented, or that *elegans* may prove to be a depauperate race of *masoni*. Additional material is needed to solve this problem.

The present specimen is larger than the measurements given by Westwood, almost the exact size of his figure. It has the marking of the radiate field more extensive and more striate caudad.

Length of body 40., length of pronotum 11.3, greatest pronotal width 4.8, least pronotal width 3., length of tegmen 22.7, width of tegminal marginal field 2.1, length of cephalic femur 12.4 mm.

Caliris elegans Giglio Tos.

1915. *C[aliris] elegans* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVI, p. 82. [♀; Deli, Sumatra.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂, 1 ♀.

We find the present female smaller than the type, even smaller than the measurements given by Giglio-Tos for his *C. elegans* from Sumatra. In the present female, however, the distal subcallous areas of the tegmina and the beautiful markings of the wings are as shown by Westwood's generally excellent figure. As to the distal obliquity of the humeral and median veins described for *elegans*, the same is true for the present female, and we believe will be found the same in the type of *masoni*, the figure being probably inexact in this feature.

The male sex being unknown for the genus and species, we would remark the following features:

General form similar to but more slender than that of female, armament of cephalic limbs exactly the same. Ocelli slightly larger. Facial scutellum generally similar to that of female, but very slightly broader, dorsal margin acute angulate mesad. Tegmina and wings

[31] Bull. Soc. Ent. Italiana, XLVI, p. 198, (1915).

narrower than in female, but with similar venation; coloration transparent, with a very weak greenish tinge, veins very pale greenish. Subopaque or subcallous areas of tegmina and striking markings of wings not present in this sex. Supra-anal plate strongly transverse, length hardly one-third basal width; lateral margins nearly straight and strongly convergent from above cercal bases to broadly truncate apex. Subgenital plate flattened scoop-shaped, lateral margins weakly convex convergent, rounding distad into the broadly convex apex; dextral portion elevated dorsad from base of cercus to dextral style in a low ridge with dorsal margin broadly convex. Styles minute, simple, cylindrical, each about three times as long as wide, separated by a distance equalling about two-fifths the length of the style.

Though so utterly different in tegminal and wing coloration, the sexes of this species are easily associated by the similarity of cephalic and pronotal form and limb armament.

Length of body, ♂ 26.2, ♀ 30; length of pronotum, ♂ 6.8, ♀ 7.9; greatest pronotal width, ♂ 2.9, ♀ 3.5; least pronotal width, ♂ 2.1, ♀ 2.7; length of tegmen, ♂ 18, ♀ 17.3; width of tegminal marginal field, ♂ 1.6, ♀ 1.9; length of cephalic femur, ♂ 7.2, ♀ 9 mm.

Gilda suavis Giglio-Tos.

1915. *G[ilda] suavis* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVI, p. 85. [♀; Limbang, Borneo.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♀.

The female sex of this species is even more beautiful than that of *Caliris masoni*. The present specimen is a trifle smaller than the type, agreeing fully in all details of coloration.

We would note that, in the material at hand, the cephalic tibiæ have the ventro-internal margin supplied with thirteen spines in *Gilda* and with fourteen in *Caliris*, not including the terminal claw. This claw was either counted by Giglio-Tos for *Caliris*, or his material of that genus shows one more spine on the margin in question.

In *Gilda* the pronotum is longer, with shaft proportionately more slender and supra-coxal expansion much broader and consequently very much more conspicuous than in *Caliris*. In the present female the pronotum shows the following dimensions: length 13.3, greatest width 4, least width 1.8 mm.

3d Group, Leptomantes.

Leptomantis albella (Burmeister).

1838. *M[antis] albella* Burmeister, Handb. Ent., II, Abth. II, pt. I, p. 533. [Java.]

1915. *Leptomantis sumatrana* Giglio-Tos, Bull. Soc. Ent. Italiana, XLVI, p. 88. [♂, Sumatra.]

After careful consideration of the literature and the material of this genus before us, we feel fully justified in placing *sumatrana* Giglio-Tos in synonymy. A possibility exists that the name should be placed under *L. fragilis* (Westwood), but due to the inadequacy of the original three-line description of *sumatrana*, this can be determined definitely only by examination of the type or further knowledge gleaned from Sumatran material.

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂, 2 ♀.

Samarang, Java, November, 1909, (E. Jacobson), 1 ♂, [Academy of Natural Sciences of Philadelphia].

It is clear that the species of the genus are closely related, and particularly *albella* and *fragilis*. When compared with *fragilis*, the present insect is seen to differ in the male sex as follows. Interrupted dark line margining pronotum and mesal pair of dots normally very weakly indicated, in discolored specimens sometimes obsolete.[32] Tegmina wholly immaculate. Supra-anal plate triangular with apex rounded, decidedly shorter than proximal width. Cerci tapering distad to slender apices.

Unfortunately lack of female material of *fragilis* prevents comparison for that sex. Females of *albella* are readily separable from those of *L. lactea* (Saussure) by the distinctly narrower marginal field of the tegmina (.8 mm. in width), while those before us are smaller than the female of *lactea* at hand (length of pronotum 11.4 and 12 mm.) with tegmina very weakly milky, except latero-proximad where they are weakly milky, in marginal field where they are translucent, milky and distal portions of marginal fields of tegmina and wings where they are buffy and almost opaque.[33]

Leptomantis fragilis (Westwood).

1889. *Musonia fragilis* Westwood, Rev. Ins. Fam. Mantidarum, p. 31. [[♂]; Sarawak, Borneo.]

1889. *Musonia bilineata* Westwood, Rev. Ins. Fam. Mantidarum, p. 32. [[♀]; Sarawak, Borneo.]

It is extremely probable that Westwood described sexes as indicated in the above synonymy. The male was apparently a discolored specimen, as the usual striking features of pronotal coloration are not mentioned in the description.

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[32] Burmeister's type was in such condition, or this feature was either naturally obsolete or wholly overlooked.

[33] Compare Saussure's comments on a Javanese female, at the time he placed his *lactea* under *albella*, Mélang. Orth., II, p. 72, (1872).

Giglio-Tos' reason for assigning *bilineata* to synonymy under *lactea* and then describing a new species, *sumatrana*, is certainly not clear.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

Labuan Island, British North Borneo, 3 ♂.

When compared with *albella*, males of *fragilis* are seen to agree closely, differing from those of that species only as follows. Interrupted dark line margining pronotum and mesal pair of dots normally well defined, particularly on the collar.[34] Tegmina and wings distad with outer portion of marginal field almost opaque and strikingly buffy or reddish. Supra-anal plate triangular with apex acute, length slightly greater than proximal width. Cerci shorter, distal joint flattened with apex rounded, slightly broader than the preceding joints.

We regret that no females of this species are before us.

Leptomantis lactea (Saussure).

1870. *M*[*iopteryx*] *laetea* Saussure, Mélang. Orth., I, p. 274. [♀; Manila, Philippine Islands.]

Mount Makiling, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♀.

The specimen at hand has the body much discolored and shows no dark markings on the pronotum, as did specimens in Saussure's series, other than the type. Such a condition would appear to occur also in *albella* and *fragilis*. The specimen under consideration is slightly larger than Saussure's type, in other respects agreeing fully. The tegmina and wings are weakly milky, the outer portion of the marginal fields distad being slightly more so.[35] When compared with females of *albella*, the present female is seen to be larger with pronotum distinctly heavier, its lateral margins minutely but distinctly denticulate, not smooth as in that species. The measurements of this specimen are: length of body 35, length of pronotum 13, least width of pronotum 1.3, length of tegmen 21, width of tegminal marginal field 1.2, length of exposed portion of wings when at rest 4.7, length of cephalic femur 7.8 mm.

Leptomantis tonkinæ new species. (Plate I, figures 11 and 12.)

This species is apparently nearest *L. indica* Giglio-Tos, but so poorly is that species characterized that the degree of affinity can not be satisfactorily determined.

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[34] Apparently these markings are sometimes absent, possibly due to discoloration. Westwood makes no mention of this feature in describing the type of *fragilis*, but describes it in full for the type of *bilineata*.

[35] See additional remarks under *albella*.

The marking of the pronotum and cephalic coxæ are distinctive features in *tonkinæ*. It is nearer *lactea* than *albella* or *fragilis*, agreeing with the female of *lactea* before us in the heavier pronotum with lateral margins serrulate, wider marginal field of the tegmina and heavily milky tegmina and wings. The pronotum is, indeed, slightly heavier and the tegmina and wings very much more heavily milky than in *lactea*.

Type.— ♀ ; Than-Moi, Tonkin. June and July. (From H. Fruhstorfer.) [Hebard Collection Type No. 523.]

Size large for the genus, form very slender but not as slender as in females of *albella*. Summit of vertex raised above dorsal margins of eyes a brief distance, straight, transverse to brief areas on each side adjacent to eyes, which are convex and project very slightly. Ocelli very small, well separated, forming a triangle nearly twice as broad as high. Facial scutellum poorly defined, strongly transverse, dorsal margin convex in median portion. Pronotum very elongate and slender but slightly heavier than in this sex of *lactea*, decidedly heavier than in females of *albella*, lateral margins minutely serrulate, supra-coxal expansion very weak, transverse sulcus distinct. Tegmina with venation as characteristic for genus, falling considerably short of apices of wings (by 5 mm.), marginal field comparatively broad (1.6 mm. in width). Cerci hairy, tapering to acute apices. Supra-anal plate can not be examined without injury to type. Cephalic femora with four discoidal spines, of which the first two are rather closely placed and nearly opposite each other transversely on the ventral surface, the first being on the internal margin just before the unguicular sulcus;[36] ventro-external margin with four elongate spines and all genicular lobes with a small spine; ventro-internal margin with the following formula IIIIIIIIIIIIII, of which all the longer spines in the alternating series slant inward and distad to some degree. Cephalic tibiæ with ventro-external margin armed with seven spines, of which the first is placed at a distance from the second, this equalling twice the interval between the second and third, the remaining intervals brief; first, third, fourth and sixth spines small, second and fifth of about double that size and length, seventh and apical spine decidedly the heaviest and longest. Caudal metatarsus twice length of succeeding joints.

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[36] On one limb a single very small spine is found on the ventro-internal margin before the first discoidal spine. This is apparently an abnormality.

General coloration apparently pale green in life (the head, pronotum and caudal limbs have faded to yellowish brown). Pronotum with a pair of delicate lines, formed by a succession of blackish brown dots, margining the medio-longitudinal carina of the shaft, with more extensive blackish brown maculations forming a distinctive pattern on supra-coxal expansion and neck (see Plate I, figure 11). Cephalic coxæ with ventral surface narrowly bordered for a brief distance distad along internal margin with blackish brown and with a fleck of the same color meso-distad. Body and limbs elsewhere entirely immaculate. Tegmina and wings[37] heavily milky, so that when at rest they are actually transparent only distad, in other portions almost opaque; veinlets pale green; marginal fields distad, in portion between marginal and mediastine veins, opaque, milky.

Length of body 35, length of pronotum 12.2, greatest width of pronotum 2.2, least width of pronotal shaft 1.7, length of tegmen 23, width of tegminal marginal field 1.6, length of cephalic femur 8.1, length of caudal femur 9, length of caudal metatarsus 2.4 mm.

The type of this striking species is unique.

AETAELLA[38] new genus.

The present genus is very closely related to *Leptomantis* Giglio-Tos.[39] We find these genera to agree closely, except in characters of the armament of the cephalic femora and tibiæ. In both genera the spines of these margins are strongly developed, the number and proportions constant;[40] for the cephalic femora the discoidal spines are four in number, of which the first two are rather closely placed and nearly opposite each other transversely on the ventral surface, the first being on the internal margin just before the unguicular sulcus; the ventro-external margin with four elongate spines and all genicular lobes with a minute but elongate spine.

Genus monotypic. *Genotype.—Aetaella bakeri* here described.

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[37] The form of the tegmina and wings when at rest, with apices of the latter considerably surpassing those of the former, and the distal, marginal, more strongly colored areas along the costal margin, gives the species before us of the genera *Xanthomantis*, *Polyacanthopus*, *Leptomantis* and *Aetaella* a distinctive and rather similar general facies, suggesting that shown by species of the Neuropteroid genus *Mantispa*.

[38] From Aeta+ella. The Aetas, or Negritos, are the aborigines of the Philippines.

[39] Bull. Soc. Ent. Italiana, XLVI, p. 87, (1915).

[40] Except for the smallest distal spines of the ventro-internal margin of the cephalic femora, which in *Aetaella* individually vary from three to five.

The features which separate *Aetaella* from *Leptomantis* are given below for the two genera.

In *Leptomantis* the ventro-internal margin of the cephalic femora shows the following formula, ɪIɪIɪIɪIɪɪɪI. The cephalic tibiæ have the ventro-external margin armed with seven spines, the first separated a considerable distance from the second, the second a lesser distance from the third, the others separated by very brief intervals. The first spine is elongate, the second much more so, the third and fourth of about the same length, shorter than the first, the fifth intermediate in length between the first and second, the sixth shorter, intermediate in length between the fourth and fifth, the seventh very elongate, it and the second the longest spines of the series. The cephalic tibiæ have the ventro-internal margin armed with eleven to twelve spines.

In *Aetaella* the ventro-internal margin of the cephalic femora shows the following formula, ɪIɪIɪIɪIɪIɪIɪɪɪI. The cephalic tibiæ have the ventro-external margin armed with six spines, the placement similar to that in *Leptomantis*, except that the distal spines are not so closely placed. The first spine is elongate, the second more so, the third shorter than the first, the fourth as long as the first, the fifth as long as the third, the sixth slightly longer than the second. The cephalic tibiæ have the ventro-internal margin armed with thirteen to fifteen spines.

We would note further that in *Aetaella* the tegmina do not widen distad as much as in *Leptomantis* and, in consequence, the oblique veins are not quite as widely separated.

Aetaella bakeri[41] new species. (Plate I, figures 13 and 14.)

In general appearance and form this species agrees closely with *Leptomantis albella* (Burmeister). In addition to the striking differences of cephalic limb armament, the tegmina of this insect are seen to be somewhat narrower in both sexes, with oblique veins consequently slightly more approximate.

The males of *A. bakeri* have the moderately large ocelli arranged in a triangle slightly wider than high, while the males of *L. albella* have the slightly larger ocelli arranged in a triangle slightly higher than wide. In the females of both species the ocelli are greatly reduced and arranged in a triangle wider than high. The tegmina and wings are clear hyaline in *A. bakeri*, but show a slight milky suffusion in *L. albella*.

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[41] We take pleasure in naming this interesting Mantid in honor of Mr. C. F. Baker, through whose efforts a large portion of the material at present under consideration has been assembled.

TYPE.—♂; Mount Makiling, Island of Luzon, Philippine Islands. (From C. F. Baker.) [Hebard Collection Type No. 522.]

Size medium small, form extremely slender, as in *L. albella*. Head transverse, summit of occiput transverse and on a plane with dorsal margin of eyes, except briefly near the eyes, where, on each side, it is moderately produced and convex. Ocelli as described above. Facial scutellum strongly transverse, height one-fourth width, dorsal margin rather broadly convex. Pronotum very elongate and slender, margins unarmed, dorsal surface smooth, a trace of medio-longitudinal sulcation indicated in area of supra-coxal expansion, transverse sulcus there well defined, supra-coxal expansion feeble. The tegminal apices fall slightly short of the abdominal apex, the wing apices fall slightly beyond the abdominal apex; the venation of these organs is similar to that found in *L. albella*, the tegmina are, however, slightly narrower and are surpassed by the wings by a lesser distance. Supra-anal plate minute, length half basal width, lateral margins convergent to the broadly rounded apex. Cerci elongate, tapering to acute apices, each joint rounded with greatest width near distal extremity. Subgenital plate with lateral margins convex-convergent only distad, styles slender and cylindrical, about four times as long as wide, separated by a distance equalling the length of one of the styles. Cephalic femora with unguicular sulcus mesad, with a circular concavity between the first two spines of the ventro-external margin, into which fits the apex of the terminal spine of the ventro-external margin of the cephalic tibia when these parts are flexed, ventral surface with a cluster of minute sharp teeth opposite the second spine of the ventro-external margin. Armament of limbs as given in generic diagnosis. Caudal metatarsus nearly twice as long as combined length of succeeding joints.

Allotype.—♀; same data as type. [Hebard Collection.]

Agrees with male in all but the following features. Size larger. Ocelli much smaller and arranged in a triangle which is considerably wider than high. Supra-anal plate with length slightly less than half basal width, triangular, with apex broadly rounded. Subgenital plate with valves of distal portion evenly convex dorsad and ventrad.

General coloration delicate green in life.[42] Entire insect immaculate. Tegmina and wings transparent, iridescent, clear hyaline.[43]

[42] The majority of the specimens of the present series have faded to yellowish brown.

[43] In the specimens before us in which the coloration apparently shows the best preservation, these organs are faintly tinged with green, the veins green. In the others of the series all trace of green has disappeared, the veins being yellowish brown.

Measurements (in millimeters)

♂	Length of body.	Length of pronotum.	Greatest width of pronotum.	Length of tegmen.	Width of tegmen.
Mt. Makiling, *type*.....	27	9.2	1.6	16.3	3.4
Malinao, *paratype*.....	27.2	9.3	1.6	16.4	3.6
Dapitan, *paratype*.....		8.9	1.5	16	3.4
Sandakan, Borneo.....	25	8.6	1.4	13.6	
♀					
Mt. Makiling, *allotype*..	31	11.2	1.7	18.4	3.9
Los Banos, *paratype*....	31	11.2	1.7	18.3	3.8
Los Banos, *paratype*....	33.5	11.4	1.8	18.4	3.8

In addition to the type and allotype, the following material is before us, of which we consider the Philippine specimens paratypic.

Mount Makiling, Island of Luzon, Philippine Islands, (from C. F. Baker), 2 ♂.

Malinao, Tayabas, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

Los Banos, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 2 ♀.

Dapitan, Zamboanga, Island of Mindanao, Philippine Islands, (from C. F. Baker), 1 ♂.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

XXI. Deroplatinæ.

1st Group, Deroplates.

Deroplatys desiccata Westwood.

1839. *Deroplatys desiccata* Westwood, Mod. Classif. Ins., I, p. 430. [Malacca.]

Labuan Island, British North Borneo, 4 ♂, 1 ♀.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♀.

Deroplatys truncata (Guérin).

1843. *Choeradodis truncata* Guérin, in Delessert, Souv. Voyage Inde, Hist. Nat., p. 65, pl. XV. [[♀]; Singapore, Malay Peninsula.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂, 1 ♀.

XXII. Mantinæ.

2d Group, Sphodropodæ.

Sphodropoda tristis (Saussure).

1870. *M[antis] tristis* Saussure, Mélang. Orth., I, p. 241. [♀; Islands of Viti [= Fiji Islands].]

Townsville, Queensland, Australia, 1 ♀.

Queensland, Australia, 2 ♂.

This species is now known to have a wide distribution over the Australian continent.

Sphodropoda quinquedens (MacLeay).

1827. *Mantis quinquedens* MacLeay, King's Survey Intertrop. Coasts Australia, II, p. 454. [Northern and western coasts of Australia.]

Queensland, Australia, 1 ♀.

The striking sculpture and coloration of the internal faces of the cephalic femora, which bear four buffy, elevated, transverse lines on the otherwise glossy ochraceous-tawny surface, are distinctive features in this species.

11th Group, Mantes.

Statilia maculata (Thunberg and Lundahl).

1784. *M[antis] maculata* Thunberg and Lundahl, Dissert. Ent. Novas Ins. Spec., pt. III, p. 61. [Japan.]

1912. *S[tatilia] haanii* var. *hyalina* Giglio-Tos, Bull. Soc. Ent. Italiana, XLIII, p. 7. [Japan.]

We can not agree with Giglio-Tos in recognizing the species here considered as *S. haanii* (Saussure). Among the Japanese Mantidæ, Thunberg and Lundahl's description of *maculata* fits this species and this species only.[44] Their statement "thorace alato spinuloso" we interpret to mean that the spinulæ along the lateral margins of the pronotum project outward, as indeed they do. Saussure's *haanii* has long, and properly, been placed in synonymy under *maculata*.

Giglio-Tos has proposed the name *hyalina* for a specimen evidently showing an extremely recessive coloration. We therefore place this name in the present synonymy as having no systematic value.

Khasia Hills, Assam, 1 ♀.

Labuan Island, British North Borneo, 4 ♂, 6 ♀.

Sandakan, British North Borneo, (from C. F. Baker), 2 ♂.

Obi Island, Moluccas, 2 ♂.

All of the specimens here recorded show the characteristic markings of the cephalic coxæ and femora. In the series the extremes of pronotal length are: ♂ 12.8 to 14.2, ♀ 14.8 to 17.3; the extremes of greatest pronotal width, ♂ 3.1 to 3.7, ♀ 4 to 4.9 mm.

Statilia nemoralis (Saussure).

1870. *Pseudomantis nemoralis* Saussure, Mitt. Schweizer Ent. Ges. III, p. 229. [♀; Manila, [Philippine Islands].]

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[44] A large Japanese series of the species, in the Academy and Hebard Collections, is before us.

Island of Basilan, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂, 1 ♀.

Mt. Makiling, Island of Luzon, Philippine Islands, (from C. F. Baker), 2 ♂.

Los Banos, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

Society Islands, 1 ♂.

This species is very closely related to *maculata*. The specimens at hand are all smaller, with cephalic femora very slightly but appreciably more slender than any examples in the large series of *maculata* before us. In addition, all but one entirely lack a black transverse line bordering the unguicular sulcus distad.

The black markings of the cephalic coxæ and femora are shown by the present material to be extremely variable. In the Philippine specimens the cephalic coxæ are black proximad on their internal faces for a distance equalling about one-fourth their length, the adjacent portions of the prosternum dark, the femora without marking at the unguicular sulcus, with bases of ventro-internal spines maculate with black, the surface of the limb above these markings pale.

The Basilan male is marked as is characteristic for *maculata*, but with entire ventral surface of prosternum suffused. The Basilan female is a very dark individual, but shows the same black markings as the Philippine males; in this individual the pale area above the ventro-internal spines of the cephalic femora being very conspicuous and in sharp contrast with the dark general coloration.

The Society Islands male has the cephalic coxæ black proximad on their internal faces for a distance equal to about one-half their length, the prosternum immaculate, the femora with half of area proximad of unguicular sulcus black, with bases of ventro-internal spines blackish.

Measurements (in millimeters)

	Length of body.	Length of pronotum.	Greatest width of pronotum.	Length of tegmen.	Length of caudal femur.	Width of caudal
♂						
Island of Basilan	34.8	10.6	2.3	22.8	10.1	1.3
Los Banos, Luzon	40.5	12.3	2.7	24.9	11.3	1.2
Mt. Makiling, Luzon	36	9.9	2.4	21.7	8.8	1
Mt. Makiling, Luzon	40.5	12.3	2.7	25.6	11.3	1.3
Society Islands	30.8	9.7	2.3	22.7	9.2	1.2
♀						
Island of Basilan	42.7	14.5	3.8	23.2	13.5	1.8
Samarang, Java[45]	38	11.8	3.2	29.2	11.7	1.8

[45] In the Academy collection. Recorded by Rehn, Notes Leyden Mus. XXXV, p. 123, (1912). The female from Goenong Soegi, Lampong, Sumatra, referred at that time to *nemoralis*, we assign to *maculata*, as originally recorded by Rehn, Proc. Acad. Nat. Sci. Phila., 1903, p. 704, (1903).

12TH GROUP, TENODERÆ.

Tenodera[46] **aridifolia** (Stoll).

1813. [*Mantis*] *aridifolia* Stoll, Natuur. Afbeeld. Beschr. Spooken, etc., pp. 65, 78, pl. XXII, fig. 82. [East Indies.]

Khasia Hills, Assam, 1 ♀.

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂, 1 ♀.

Labuan Island, British North Borneo, 1 ♂, 2 ♀.

Davao, Davao, Mindanao, (from C. F. Baker), 1 ♂.

Society Islands, 1 ♂.

The specimens from Labuan are decidedly larger than the others of the present series.

We would note that the proportionate difference between the length of the shaft (metazona) of the pronotum and the cephalic coxæ for the present species and *sinensis* (Saussure) is exaggerated in Giglio-Tos' key.[47] In both species the pronotal shaft is distinctly longer than the cephalic coxa, the degree averaging only slightly greater in *aridifolia*.

We find that *sinensis* is proportionately a heavier insect, with pronotum distinctly shorter and broader. In a large series of Japanese material of that species in the Philadelphia Collections, we find that the width of the tegminal marginal field varies in the females from 3.9 to 4.5 mm.

In the females of *aridifolia* at hand, the width of the tegminal marginal field is narrower, varying as follows: Khasia Hills, Assam, 3.8; Trong, Siam, 2.9 and 3.3; Singapore, Malay Peninsula, 2.7; Goenong Soegi, Sumatra, 2.6; Labuan, Borneo, 2.4 and 2.6 mm. This material would appear to indicate a gradual reduction in the width of this field in material of the present species from continental Asia eastward through the Malayan Regions.

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[46] The type of *Paratenodera* Rehn is *sinensis*, as originally designated by that author (Proc. Acad. Nat. Sci. Phila., 1903, p. 705, (1903)), not *aridifolia* as later designated by Giglio-Tos (Bull. Soc. Ent. Italiana XLIII, p. 33, (1911)). From the study of the considerable number of species now before us in the Philadelphia Collections, we believe that but one genus is represented in the regions under consideration and follow Giglio-Tos in placing *Paratenodera* Rehn in synonymy under *Tenodera* Burmeister, of which the genotype is *fasciata* (Olivier) = *attenuata* (Stoll).

Though *sinensis* Saussure and *attenuata* (Stoll) differ so widely in form and general appearance, *australasiæ* (Leach) is seen to be an almost intermediate type, while no combination of characters to divide the Asiatic species can be found, sufficient to warrant generic separation.

[47] Bull. Soc. Ent. Italiana, XLIII, p. 33, (1911).

Tenodera attenuata (Stoll).

1792. *Mantis fasciata* Olivier, Encycl. Méthod., VII, p. 640, No. 6. [[♂], "Surinam."]

1813. [*Mantis*] *attenuata* Stoll, Natuur. Afbeeld. Beschr. Spooken, etc., pp. 13, 79, pl. V, fig. 16. [[♂], "Surinam."]

We find Kirby, Giglio-Tos and others to be in error in using *fasciata* (Olivier) as the name for this species. This is due to the fact that the *Mantis fasciata* Olivier in question is preoccupied by *Mantis fasciata* Thunberg, 1815, and by *Mantis fasciata* Olivier, 1792, Encycl. Méthod., VII, p. 640, No. 4.

Samarang, Java, July and August, 1909, (E. Jacobson), 2 ♂,[43] [Academy of Natural Sciences of Philadelphia.]

Tenodera blanchardi Giglio-Tos.

1911. *T*[*enodera*] *blanchardi* Giglio-Tos, Bull. Soc. Ent. Italiana, XLIII, p. 46. [♂, ♀; Stephansort, German New Guinea; Bukana, Gulf of Huon, New Guinea; Ralum, Bismarck Archipelago; Cape York, Torres Strait, [Queensland, Australia]; Port Darwin, [North Australia]; Ternate [Gilolo Island, and Island of] Amboina].

Obi Island, Moluccas, 9 ♂, 9 ♀.

Moluccas, (Griolet), 1 ♀, from Saussure, labelled *superstitiosa*, [Academy of Natural Sciences of Philadelphia.]

Amboina, 2 ♂, 2 ♀, [Academy of Natural Sciences of Philadelphia.]

Mesopteryx alata Saussure.

1870. *M*[*esopteryx*] *alata* Saussure, Mittheil. Schweizer Ent. Gesellsch., III, p. 235. [♀; Manila, [Philippine Islands].]

Los Banos, Laguna, Luzon, (from C. F. Baker), 1 ♂.

As the male sex of this interesting species was previously unknown, we note the following features. Lateral margins of pronotum, dorsad and ventrad, show a series of very minute black dots. Tegmina reach slightly beyond apex of fifth dorsal abdominal segment. Distal portion of abdomen damaged. Length of body 87, length of pronotum 29.4, length of pronotal shaft 24, greatest pronotal width 4, least width of pronotal shaft 3.8, length of tegmen 43.6, width of tegminal marginal field 2.7, length of cephalic femur 15.9, length of median femur 16.2, length of caudal femur 21.2 mm.

13th Group, Hierodulæ.

Giglio-Tos has divided this complex group into three categories: the first African, including *Sphodromantis* and its allies; the second Asiatic and Oriental, including *Hierodula* and its allies; the third

[43] Recorded by Rehn as *T. superstitiosa* (Fabricius), Notes from Leyden Mus., XXXV, p. 124, (1912).

Melanesian and Australian, including his new genus *Parhierodula* and its allies.

It is the last two categories with which we have particularly to deal and, from the material before us, we feel fully justified in repudiating the arrangement made by Giglio-Tos.

The insurmountable difficulty in that author's argument lies in the fact that, were we to accept the character of smoothness or serration of the costal margins of the tegmina as primarily important, we would give this feature far more weight than is its due. We consider this feature of probably a physiologic application and by no means as important for generic separation as the great pronotal expansion found in the forms which, in the past, were all assigned to *Rhombodera*. This different pronotal expansion is clearly a somatic character. It is found in the immature stages. The tegminal features are found in the adult condition only and for that reason we feel obliged to consider them of secondary value.[49]

We therefore place *Parhierodula* Giglio-Tos under *Hierodula* Burmeister, and *Rhomboderula*[50] Giglio-Tos, described as a subgenus of *Parhierodula*, under *Rhombodera* Burmeister. These two units as recognized by Giglio-Tos, *Parhierodula* and *Rhomboderula*, may not even stand as subgenera, based only on the different character of the costal margins of the tegmina.

Using the same argument, when we consider the African species of the Hierodulæ, we find that Giglio-Tos' subgenus *Rhomboderella*, of the genus *Sphodromantis* Stål, represents a valid generic unit.

Though the relative values of the character of the tegminal margins or the pronotal development afford full justification for such action, the material at hand shows further necessity for the present adjustment. Several species before us, some with costal margins of the tegmina smooth, others with these margins serrulate, unquestionably belong not only to the same genus, but also to the same species group within the genus. The general facies and sum total of characters in these is much too close to be ascribable to convergence in two different genera, as Giglio-Tos, using his classification, would be forced to assume. Thus *Hierodula laevicollis* Saussure and *Hierodula sorongana* (Giglio-Tos) are species of close affinity,

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[49] Indeed Giglio-Tos himself evidently was obliged at times to switch to this point of view, for otherwise he would have no grounds for erecting the related genus *Pnigomantis*.

[50] We here select *Rhomboderula* [*Rhombodera*] *saussurei* (Kirby) as genotype of *Rhomboderula* Giglio-Tos. For a discussion of the species which Giglio-Tos assigned to his *Rhomboderula*, see page 00.

representing a group within the genus of more recent common ancestry. To this same group belongs *Hierodula obiensis*, described in the present paper. Here we have two species with costal margins of tegmina smooth and one (*sorongana*) with these margins distinctly serrulate. Again *Hierodula venosa* (Olivier) and *Hierodula vitrea* (Stoll) are referable to another similar group, though *venosa* has the costal margins of the tegmina smooth, *vitrea* showing these margins varying individually from very weakly to distinctly serrulate, as has been noted by Giglio-Tos. In this latter species we further see that the degree of serrulation of the tegminal margins is variable, even within a species unit.

In the majority of cases the Asiatic and Malayan forms have the tegmina with costal margins smooth, the Papuan and Australian forms having these margins serrulate,[51] but this interesting feature, probably physiologic as we have stated, is by no means as absolute as one would infer from superficially considering Giglio-Tos' statements. Though these groups are geographically defined by Giglio-Tos, using Wallace's Line, examination of his specific assignments shows that six species referred to *Hierodula* (*sensu strictiore* of Giglio-Tos), considered by him to be an Oriental genus, occur only in the Australasian regions; five species referred by Giglio-Tos to his *Parhierodula*, which he considered to be a Papuan and Australian genus, occur only in the Asiatic and Oriental regions, while one species of each of his divisions occurs on both sides of Wallace's line.

The genus *Hierodula* is exceedingly large, but already a number of the species have been separated by Giglio-Tos into distinct and apparently valid genera: *Alalomantis, Hierodulella, Pnigomantis, Ephierodula, Camelomantis* and *Tisma*. It will probably also be found necessary to separate *Hierodula tamolana* (Brancsik) and its allies in a distinct genus. At present sufficient material is wanting for proper and definite comparative analysis and assignment of these.

HIERODULA Burmeister.

1838. *Hierodula* Burmeister, Handb. Ent., II, Abth. II, pt. I, p. 536.
1912. *Parhierodula* Giglio-Tos, Bull. Mus. Soc. Ent. Italiana, XLIII, p. 108.

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[51] Giglio-Tos takes this to mean that two distinct sources are represented, one Asiatic, the other Australasian. The probability is, in our opinion, that the Asiatic phylum is the original source, the other a derivative from it. This opinion is strengthened by the realization that the forms with tegminal margins serrulate reach much their greatest numerical abundance in Papua and in few cases is their distribution extended to Australia, while none are known peculiar to that continent.

Genotype, selected by Rehn.[52]—*Hierodula* [*Mantis*] *membranacea* (Burmeister).

We regret, but feel obliged to say that Giglio-Tos' treatment of the Hierodulæ leaves much to be desired. That author has described eight genera and forty-six new species. The descriptions are deplorably brief, in some cases represented by a single short and wholly comparative sentence. The measurements omit all but the most essential proportions. Not a single figure is given. Not only are the major divisions faulty, but also the arrangement of the species, such as placing without comment, *Hierodula ovata,* clearly the female of *Hierodula laevicollis,* twenty-fourth and *laevicollis* thirty-fifth.

Finally we are disturbed by Giglio-Tos' conception of what constitutes a species. That author has described *Stagmomantis nordica* from Virginia and Baltimore, Maryland. After years of careful field work in that region we have proof positive that *Stagmomantis carolina* (Johansson) is the only Mantid which occurs there, *nordica* being based on merely an intensively colored phase of that species. Realizing this we are dismayed at the number of new species described from little known tropical regions, the descriptions giving differences which are so slight that we can but fear that a multitude of invalid species have been proposed.

The situation only shows the absolute necessity at the present time, of the specialist, working on a particular group of insects, to have a first hand knowledge of the forms in nature. It would appear that the most serious defects in Giglio-Tos' studies are due to the fact that that author has apparently had little or no preparation in the field for the task undertaken.

Hierodula gracilicollis Stål.

1877. *H*[*ierodula*] *gracilicollis* Stål, Bih. till K. Svenska Vet. Akad. Handl., IV, No. 10, p. 58. [♀; Sarawak, [Borneo].]
1898. *H*[*ierodula*] *stigmata* Brunner, Abhandl. Senkenb. Naturforsch. Ges., XXIV, p. 214, pl. XVII, fig. 21. [♂; Kina Balu, [British North] Borneo.]

We believe Kirby correct in considering *stigmata* the same as *gracilicollis,* but are of the opinion that *Mantis similis* Giebel is best assigned to synonymy under *Hierodula venosa* (Olivier).

Labuan Island, British North Borneo, 2 ♂, 1 ♀.

These specimens are the most delicate and slender of any material now before us representing the genus *Hierodula* or its allies. The

[52] Proc. Acad. Nat. Sci. Phila., 1903, p. 708, (1903).

female at hand differs from the type in being somewhat longer, with pronotal width slightly greater and tegmina slightly longer, in all other respects agreeing closely with the measurements given by Stål.

The following features are noted for the present material. Facial scutellum with lateral margins parallel, broader than high (♂ 1.9 by 1.7, ♀ 2.8 by 2.7 mm.), showing two parallel vertical carinæ which are well defined, particularly ventrad, but show a brief subsidence, though no break, immediately below the median point. Cephalic coxæ with cephalic margin armed with small, somewhat irregularly placed, slender but blunted spines (eight to thirteen[53]), with apices directed distad, those meso-distad being slightly the larger. Cephalic femora with base and apex of trochanter flecked with dark brown, a minute brown fleck at base of first discoidal spine, at base of first large spine beyond the unguicular sulcus and at bases of last two large spines of this series, these spines, as well as the third discoidal spine, blackish brown on their internal faces. All spines of cephalic femora and tibiæ black tipped. Each joint of cephalic tarsi flecked with brown distad. Pronotum with well developed but not closely placed marginal denticulations on collar and cephalic half of shaft, weaker in one male and in that specimen mainly indicated on collar. Tegmina with discoidal field transparent, hyaline in males, opaque in female, except mesad between veins, where they are translucent; stigma small (length 2.7 to 2.8 mm.), flecked with brown proximad and distad.

Measurements (*in millimeters*).

♂	Length of body.	Length of pronotum.	Greatest width of pronotum.	Least width of pronotum.	Length of tegmen.
Labuan Island, Borneo	55	16.2	4	2.2	41.1
Labuan Island, Borneo	56	17.6	4.2	2.3	44.8
♀					
Labuan Island, Borneo	62	21	5.6	3.1	34.2

The width of the marginal field of the tegmina in the males is 4 and 4.2, in the female 5 mm.

Hierodula vitrea (Stoll).

1813. [*Mantis*] *vitrea* Stoll, Nat. Afbeeld. Beschryv. Spooken, etc., pp. 15, 77, pl. V, fig. 19. [[♂], "Surinam."]

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[53] Interspaced with a few very small nodiform spines, so that the full count would be given as twelve to fourteen.

Batu Sangkar, Tanah Datar, Padangsche Bovenland, Sumatra, August and September, 1901, (Harrison and Hiller), 2 ♀, [Academy of Natural Sciences of Philadelphia].

Batavia, Java, 1885, 1 ♂ from Saussure, labelled *Hierodula hybrida* Burmeister, [Academy of Natural Sciences of Philadelphia].

Srondol, Samarang, Java, August, 1909, (E. Jacobson), 1 juv. ♂, [Academy of Natural Sciences of Philadelphia.]

We are by no means assured that Stoll's *vitrea* and Olivier's *venosa* do not represent sexes of one and the same species, but we do know that we have two distinct though closely allied species before us, to which we believe have been generally given in the literature the names we are using. So involved is the synonymy at present that we are strongly of the opinion that we here have to deal with an extremely plastic unit, comparable with *H. patellifera* Serville, and like it, the cause of much confusion in past literature. Consequently many features, usually considered of specific diagnostic value, will probably be found worthless for the species under consideration.

For this reason we feel that Giglio-Tos has shown decided temerity in describing *Hierodula vitreoides*, near *vitrea*, and *Parhierodula simbangana*, near *venosa*. Were these species adequately described, or figures given, their proper status might be determined. As it is, examination of the types and, if valid, redescription with figures will be necessary.

In the material here recorded the cephalic coxæ have the cephalic margin armed with (eight to nine) moderately well separated spines, which increase moderately in length distad (particularly in the females, length of longest, ♂ .3, ♀ .8 mm.). The costal margin of the tegmina is weakly serrulate, this strongest meso-distad. In the females the pronotum has the margins of the collar moderately denticulate, the denticulations of the cephalic half of the shaft weak, the shaft with medio-longitudinal carina well developed. In this sex the tegmina extend considerably beyond the apex of the abdomen, with marginal field proportionately narrower than in females of *venosa* and with stigma smaller (length 2.4 and 2.9 mm.).

The adult specimens before us are all dried alcoholic. One only shows the cephalic trochanter with apex slightly darkened, but all show subobsolete traces of darker suffusions on the inner faces of the cephalic femora, as described for *venosa*. From this feature we believe that *H. tenuis* Giglio-Tos is a member of the same phy-

lum, though particularly distinct in having the margins of the male pronotum crenulate. The margins of the male pronotum are entire, with no trace of denticulation, in both *vitrea* and *venosa*.

Hierodula venosa (Olivier).

1792. *Mantis venosa* Olivier, Encycl. Méthod., VII, p. 639, No. 73. [[♀]; Tranquebar, [India].]

Labuan Island, British North Borneo, 2 ♀.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂.

This material, compared with specimens which we consider representative of *H. vitrea* (Stoll), shows that very close affinity exists.

We separate the material here recorded by the more numerous (twelve to fourteen)[54] and closely placed spines of the cephalic margin of the cephalic coxæ, which increase somewhat irregularly but strongly in length distad (particularly in females, length of longest spine, ♂ .8, ♀ 1.3 mm.). The costal margin of the tegmina is distinctly, moderately strongly serrulate. In the females the pronotum has the margins of the collar and cephalic half of the shaft strongly denticulate, the shaft with medio-longitudinal carina subobsolete or weakly defined. In this sex the tegmina reach only slightly beyond the apex of the abdomen, with marginal field proportionately broader than in females of *vitrea* and with stigma more ample (length 3.7 and 4.9 mm.).

Measurements (in millimeters).

♂	Length of body.	Length of pronotum.	Greatest width of pronotum.	Least width of pronotum.	Length of tegmen.
Sandakan, Borneo.....	71	23.5	6.8	4.4	52.2
♀					
Labuan Island, Borneo....	68	25	7.8	4.9	41.6
Labuan Island, Borneo....	79	27	9	5.3	51.1

The width of the marginal field of the tegmina in the male is 4.4, in the females 5.6 and 5.8 mm.

In the specimens at hand the cephalic trochanters are brown at the apex, the femora above this point, above the first discoidal spine and above the first and fifth larger spines of the ventro-internal margin are flecked with brown. These markings are decided in one female, very faint in the other two specimens. The larger female has the stigma with small brown suffusions proximad and

[54] Interspaced with additional very small nodiform spines.

distad, the male shows a trace of such marking, while the remaining female has the stigma immaculate.

Hierodula rajah Werner.

1911. *H[ierodula] rajah* Werner, Abhand. Senckenb. Naturforsch. Ges., XXXIII, p. 393. [♂, ♀; Nias [Island], Moluccas.]

Nias Island, Moluccas, 1 ♀.

The following features are noted in the female before us of this large and striking species, originally very briefly described. Facial scutellum with lateral margins straight, weakly but distinctly convergent dorsad; basal width (3.9 mm.) very slightly greater than median height (3.8 mm.); surface showing two vertical, parallel carinæ, broken meso-ventrad as in *H. venosa* (Olivier) but decidedly weaker than in that species. Cephalic coxæ with (eight and nine) small, stout, irregularly placed, conical teeth, which do not become longer distad. Cephalic femora with discoidal spines, first small spine beyond unguicular sulcus and all large spines of ventro-internal margin black, a fleck of black disto-internally on the trochanters, a large blotch of the same color from the apex of the trochanters to and including the unguicular sulcus, a small blotch at base of the first two black spines beyond, continued to the second large black spine of the series, and a spot of black at the base of each other large black spine of the series. All spines of cephalic femora and tibiæ black tipped. Joints of cephalic tarsi entirely black on their inner faces. Pronotum with marginal denticulation pronounced on lateral portions of collar only. Tegmina with discoidal field translucent, moderately hyaline; marginal field opaque, with margin almost entire, showing feeble traces of serrulation meso-distad; stigma large, cream colored.

The species would appear to agree more nearly with *H. timorensis* (Haan) than with any of the other related species.

Length of body 88, length of pronotum 33, greatest width of pronotum 10.1, least width of pronotum 5.8, length of tegmen 58.8, width of tegminal marginal field 6.2, length of stigma 4.3, length of cephalic femur 25, length of caudal femur 25.6 mm.

Hierodula patellifera (Serville).

1839. *Mantis patellifera* Serville, Hist. Nat. Ins., Orth., p. 185. [♂, ♀; Java.]

1839. *Mantis bipapilla* Serville, Hist. Nat. Ins., Orth., p. 188. [♂, ♀; Java.]

1870. *H[ierodula] manillensis* Saussure, Mittheil. Schweizer Ent. Gesellsch., III, p. 233. [♂, ♀; Manila, [Philippine Islands].]

1904. *H[ierodula] saussurei* Kirby, Syn. Cat. Orth., I, p. 245. [♂, ♀; China; Java.]

1912. *H[ierodula] manillana* Giglio-Tos, Bull. Soc. Ent. Italiana, XLIII, p. 96. [♂, ♀; Manila, Philippine Islands.]

Saussure first pointed out the synonymy of *patellifera, bipapilla* and *manillensis.*

From study of the literature, the material here recorded and a moderately large Japanese series in the Philadelphia Collections, we are convinced that we here have to deal with an exceedingly plastic species. The name *saussurei* was proposed for a condition in which the prosternum is immaculate, *manillana* for a condition in which the cephalic femora are suffused with black on their internal faces from base to unguicular sulcus.

The prosternum varies from immaculate to a heavily twice banded type, the degree of banding, when present, individually differing greatly as shown in the Japanese material at hand. The maculation of the cephalic femora appears to us to be a similarly individual color variation in this insect. In this species the costal margin of the tegmina is smooth, rarely showing faint traces of serrulation.

Giglio-Tos has attempted to separate *bipapilla* from *patellifera* on the basis of differences in pronotal curvature and other features, all of which we are satisfied are of no specific diagnostic value for this plastic insect.

Cuernos Mountains, Island of Negros, Philippine Islands, (from C. F. Baker), 1 ♂.

Manila, Island of Luzon, Philippine Islands, September, 1918, (R. C. McGregor), 1 ♀, [Academy of Natural Sciences of Philadelphia].

Los Banos, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♀.

Mt. Makiling, Island of Luzon, Philippine Islands, (from C. F. Baker), 2 ♀.

The Manila specimen is green and has the internal face of the cephalic femora suffused with blackish brown ventro-proximad. The other specimens are light or dark brown, that from Los Banos being much the smallest. The darkest individual from Mt. Makiling is strongly mottled and has the internal face of the cephalic femora weakly suffused with dark brown ventro-proximad.

Hierodula aruana Westwood.

1889. *Hierodula aruana* Westwood, Rev. Ins. Fam. Mantidarum, p. 35, pl. IV, fig. 4. [♀, Aru Islands.]

Setekwa River, opposite Aru Islands on south coast of Dutch New Guinea, (A. S. Meek), 1 ♀.

This female has a close general resemblance to the female of *H. rajah* Werner here recorded, but is somewhat smaller and shorter. The coloration of the prosternum, mesosternum, cephalic coxæ and femora readily distinguish these species, which we do not believe will be found nearly as plastic as the species more closely related to *vitrea* and the variable *patellifera*.

The costal margin of the tegmina is rather strongly serrate in this specimen. Length of body 75, length of pronotum 28.2, greatest width of pronotum 9.2, least width of pronotum 5.8, length of tegmen 51, width of tegminal marginal field 6.2, length of cephalic femur 23.3, length of caudal femur 23.8 mm.

Hierodula laevicollis Saussure.

1870. *H[ierodula] laevicollis* Saussure, Mélang. Orth., I, p. 230. [♂, Amboina.]

1871. *H[ierodula] ovata* Saussure, Mélang. Orth., I, p. 409. [♀, Amboina.]

The association of the sexes in the present series is unquestionably correct, and shows that Saussure described the female of this species as *ovata*.

Island of Amboina, Moluccas, 7 ♂, 2 ♀, 1 juv. ♀, [Academy of Natural Sciences of Philadelphia].

In both sexes the facial scutellum has its basal width equalling its height, with lateral margins parallel in the males, very feebly convergent dorsad in the females and with the two vertical and parallel carinæ subobsolete as to elevation but well defined throughout in paler coloration, each showing an impressed puncta slightly below the median point. The lateral margins of the pronotal collar are smooth to very feebly tuberculate in the males, weakly tuberculate in the females. The pronotal shaft has a medio-longitudinal carina, subobsolete to moderately developed in the males, moderately developed in the females, and in the males only, the caudal margin is bordered to varying degrees with a blackish brown suffusion. The costal margins of the tegmina are smooth, showing mere traces of denticulation under high magnification. The large oval buffy stigma in the males contrasts strikingly with the transparent, hyaline but brown tinged discoidal fields of the tegmen. The cephalic coxæ are armed with (six to eight in the series) small, bluntly conical teeth in the males, with (six to seven in the series) rather heavy bluntly conical teeth in the females.

Hierodula obiensis new species. (Plate II, figures 1 and 2.)

This interesting species is closely related to *H. laevicollis* Saussure, both sexes differing from that species in being of smaller size, with

facial scutellum decidedly transverse, not of almost equal height and width, and with markings and coloration different.

Type.—♂; Obi Island, Moluccas. [Hebard Collection Type No. 524.]

Size small, form rather slender for the genus. Ocelli large, closely placed, arranged in a triangle slightly broader than high. Facial scutellum transverse, height approximately three-fifths basal width; vertical parallel carinæ subobsolete, the two lateral sections of the scutellum each with a small dark brown suffusion mesad; dorsal margin of scutellum moderately convex, showing an indication of mesal angulation. Pronotum as in *laevicollis*, except that all trace of medio-longitudinal carination on the shaft is lost; supra-coxal expansion moderate, more decided than in *H. venosa* (Olivier), as in *laevicollis*, very slightly weaker than in *H. sorongana* (Giglio-Tos), margins smooth, caudad briefly margined with a narrow dark suffusion as in this sex of *laevicollis*, this feature indicated to a much less degree in the male of *sorongana* before us. Tegmina and wings much as in *laevicollis*, extending well beyond apex of abdomen; marginal field opaque, broad proximad, narrowing rapidly mesad, very narrow in distal half; remaining portions clear hyaline, with cross-veinlets brown for a brief distance from each vein; stigma small, linear, hardly opaque. Limb armament exactly as in *laevicollis*. Cephalic coxæ with cephalic margin armed with (six and eight) very small bluntly conical teeth. Cephalic femora with genicular areas each supplied with a small blunt spine; ventro-internal margin with the following formula, IIIIIIIIIIIII, these spines black tipped, the larger spines of this series as well as the first and third discoidal spines tawny, with a distinct basal suffusion of this color on the limb except for the discoidal spines. Cephalic tibiæ with eleven ventro-external and fourteen ventro-internal spines, the external series beginning a slight distance from the tibial base. Caudal metatarsus approximately equal in length to that of the succeeding joints.

Allotype.— ♀ ; same data as type. [Hebard Collection.]

Agrees closely with this sex of *laevicollis*, differing in the smaller size and facial scutellum, which is as described for the male of this species, thus differing only in having the dorsal margin more broadly convex. Compared with the male type of this species, this sex is seen to differ in the more robust form, ocelli which are much smaller and more widely spaced, pronotum with lateral margins microscopically denticulate before the supra-coxal expansion, minutely

but distinctly denticulate on the collar, with shaft showing a weak but distinct medio-longitudinal carina. The tegmina and wings reach only to base of supra-anal plate. The tegmina are opaque, with stigma more decided. The cephalic coxæ are armed with (six and seven) rather heavy, rounded teeth.[55] The supra-anal plate is very strongly transverse, its length hardly over one-fifth its basal width, with distal margin very broadly convex.

Male with head ochraceous-tawny, facial scutellum with two small suffusions of slate color meso-laterad, eyes dark hazel. Pronotum cinnamon-brown, caudal margin and proximal portion of lateral margins for a brief distance suffused with blackish brown. Tegmina with marginal fields opaque, biscay green, the numerous irregular veinlets vinaceous-brown; remaining portions transparent, clear hyaline, except the transverse veinlets, which are all briefly mummy brown from the points of intersection with the veins. Limbs pale green. Cephalic femora with the first and third discoidal spines tawny, the longer spines of the ventro-internal margin tawny, each with a small basal suffusion on the limb of tawny.

Female with occiput between eyes mummy brown, eyes rich tawny, face light ochraceous salmon, facial scutellum with a small slate colored suffusion meso-laterad on each side, which is slightly larger than in the male. Caudal portion of occiput, all of pronotum and limbs snuff brown, the pronotum somewhat irregularly tinged with blackish brown caudad. Spines of cephalic coxæ light buff, larger femoral spines tawny as in male. Tegmina opaque, pale yellowish green,[56] stigma cream color.

Length of body ♂ 52.8, ♀ 54.6; width of head ♂ 7, ♀ 8; length of pronotum ♂ 17, ♀ 19; greatest width of pronotum ♂ 4.9, ♀ 5.8; least width of pronotum ♂ 2.9, ♀ 3.1; length of tegmen ♂ 41.2, ♀ 28.6; width of tegminal marginal field ♂ 2.9, ♀ 3; stigma ♂ 3.2 by .7, ♀ 2.9 by .8; length of cephalic femur ♂ 12.7, ♀ 14.7; length of caudal femur ♂ 14.3, ♀ 14.9 mm.

This species is known from the single pair.

Hierodula sorongana (Giglio-Tos).

1912. *P[arhierodula] sorongana* Giglio-Tos, Bull. Soc. Ent. Italiana, XLIII, p. 120. [♀; Mansinam and Sorong, New Guinea.]

Haidana, Collingwood Bay, British New Guinea, April to May, 1907, (from A. S. Meek), 1 ♂.

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[55] In this respect the contrast between the sexes is exactly as in *laevicollis*.
[56] Apparently decidedly faded from the coloration in life.

After careful study of the literature, we place this insect under Giglio-Tos' *sorongana*, though that species is described from females and the description palpably insufficient.

No difference of note in the present example is remarked, except that the types are described as having the metazona distinctly tectiform carinate, while in the present specimen it is evenly rounded with carination subobsolete. Such difference between the sexes is shown by the series of *H. laevicollis* Saussure before us, so that we feel our present association to be justified.

When compared with males of *laevicollis*, the present male is seen to represent a species belonging to the same phylum. It differs in the facial scutellum being of the same proportions but with parallel vertical carinæ weak but distinct, broken slightly below the middle, with brief ventral portions slightly the more developed, much as in *H. venosa* (Olivier). The pronotum is slightly smaller in proportion to the rest of the body but of exactly the same character, with caudal margin of shaft showing only a very weak darker suffusion. The denticulations of the cephalic coxæ are more numerous (eight and nine), irregular and very slightly more slender. The tegmina have the discoidal field transparent, hyaline and colorless, while the stigma is much less conspicuous, narrower (3.1 by 4, in *laevicollis* 3.5 by 1.1 mm.) and the costal margins of the tegmina are minutely denticulate, this well developed meso-distad.

Length of body 61, length of pronotum 20.2, width of pronotum 5.9, length of tegmen 46.7, width of tegminal marginal field 3.5, length of cephalic femur 17.3, length of caudal femur 15.4 mm.

The Tamolana Group of the Genus Hierodula.

Of the species assigned by Giglio-Tos to his subgenus *Rhomboderula*, of his genus *Parhierodula*, but two, *saussureii* Kirby and *extensicollis* Serville, are referable to *Rhombodera*.

The others constitute a group, reaching its maximum development in Papua, which includes types, annectant to varying degrees, between the typical forms of *Hierodula* and *Rhombodera*. Of these, *atricoxis* Wood-Mason shows the most decided approach toward the type of pronotal development characteristic of *Rhombodera*.

These species may represent a valid generic unit or a subgenus of *Hierodula*, but for the present we believe it best to assign them as a group of that genus, which we term the Tamolana Group. All are distinguished by the pronotal expansion being slightly to de-

cidedly wider than the width of the head and all are conspicuous in form and coloration. We would place these species in the following order: *pectoralis* (Wood-Mason), *denticulata* (Krauss), *phryne* Stål, *splendida* here described, *tamolana* (Brancsik), *atricoxis* Wood-Mason. Three species described by Giglio-Tos, *andaina*, *dilena* and *katauana*, undoubtedly belong to this group, but the descriptions are given over almost entirely to discussion of coloration and without figures we are unable to determine accurately their affinities.

Hierodula denticulata (Krauss).

1902. *R[hombodera] pectoralis* variety *denticulata* Krauss, Orth. Austr. Malay. Archip., p. 756, pl. LXVII, fig. 4. [♀, British New Guinea.]

Setekwa River, Dutch New Guinea, (from A. S. Meek), 1 ♀.

The present specimen differs from the type in having internal surface of the cephalic coxæ entirely black, instead of black in the distal third. The distribution of the dark coloration on this surface has been used as an important specific diagnostic character by Giglio-Tos, but we are by no means convinced that it is not subject to decided individual variation, at least within certain species, its extent governed by intensification and recession of the color pattern. So closely does the present specimen agree in other respects with Krauss' description and excellent figure that we would consider description of the present example as a new species both rash and unwarranted at the present time.

The present specimen has the shaft of the pronotum slightly darkened on each side proximad and mesad and heavily suffused briefly latero-caudad and along the caudal margin with blackish brown. The cephalic femora have a broad transverse bar mesad on their external faces of dark brown. The apex of the cephalic trochanters and adjacent portion of the inner face of the cephalic femora are blackish brown, while the discoidal spines and the first two and all the longer spines of the series on the ventrointernal margin of the cephalic femora have their internal faces blackish brown, this color spreading briefly at their bases on the inner surface of the limb. The prosternum has two large round blackish spots near its caudal margin, the mesosternum two similar but slightly larger spots, while between the median coxæ are two other dark suffusions.

It would appear that Giglio-Tos' *andaina*, *dilena* and *katauana* may prove to be other color variants or geographic races of *H. pectoralis* (Wood-Mason) or the present species. With descriptions

given over almost entirely to color description and with no figures, particularly necessary to show the pronotal contour, the descriptions of these species as given have only added to the difficulties encountered, and instead of representing an addition to scientific knowledge, are in fact a distinct retrograde step.

Length of body 93, width of head 12, length of pronotum 28.8, greatest width of pronotum 12.7, length of pronotal shaft 20.7, width of unexpanded portion of shaft 6.5, length of tegmen 53, width of tegminal marginal field 6.6, length of cephalic femur 23, length of caudal femur 22.3 mm.

Hierodula splendida new species. (Plate II, figure 3.)

The present species is distinguished from all others of this section which have been properly characterized, excepting *H. tamolana* (Brancsik) by the expansion of the pronotum, which is decidedly greater than the cephalic width, but narrows sharply caudad, leaving slightly less than half of the shaft without expansion. Compared the figure and description of males of *tamolana*, the male under consideration is found to differ in the more evenly rounded margins of the supra-coxal expansion, which are smooth, without trace of denticulation. The cephalic coxæ are black on their internal faces only in the distal fourth, but this coloring appears to be individually variable in extent in species of the present group.

Type.—♂; Haidana, Collingwood Bay, British New Guinea. April to June, 1907. (From A. S. Meek.) [Hebard Collection Type No. 525.]

Size large, form rather robust, as in many species of the Tamolana Group. Ocelli large, rather closely placed in a triangle slightly wider than high. Facial scutellum with height equal to basal width, dorsal margin rather strongly convex, surface with two vertical parallel carinæ very weakly indicated. Pronotum with lateral margins smooth, shaft without trace of carina, supra-coxal expansion pyriform, considerably wider than head, margins very weakly concave-convergent cephalad, evenly convex caudad to juncture with unexpanded portion of shaft, which portion constitutes nearly half the length of the shaft. Tegmina with marginal field opaque, broad, narrowing evenly and gradually distad from point of greatest width; remaining portions transparent, hyaline, weakly tinged with brown except proximad toward marginal fields where they are embrowned and subopaque, stigma rather heavy and conspicuously pale. Cephalic coxæ with cephalic margin moderately lamellate,

armed with (eight and ten) small and very bluntly rounded spines which become slightly longer than wide distad, these irregularly interspaced with a few minute spinulæ, other margins roughly and bluntly nodulose. Cephalic femora with the characteristic armament of IIIIIIIIIIIII spines, genicular lobes each supplied with a very minute, blunt, short, stout spine. Cephalic tibiæ with ventral margins armed with eleven external and fourteen internal spines.

Head, pronotum, body and limbs tawny olive. Cephalic femora with a broad but weakly defined transverse suffusion of warm sepia. Tegmina with marginal fields and adjacent portions proximad mars brown; remaining portions transparent, very faintly tinged with mars brown; stigma cream color, with a brief but heavy suffusion proximad and distad of blackish chestnut brown. Cephalic coxæ with distal fourth of internal surface shining black,[57] apex of cephalic trochanters and adjacent area of cephalic femora blackish brown. First and third discoidal spines and all large spines of ventro-internal margin of cephalic femora blackish brown, this color very briefly suffusion the femoral surface at the bases of all the large marginal spines. Prosternum with four small flecks of blackish brown in its caudal portion, mesosternum with two larger flecks of the same coloration.

Length of body 70, width of head 9.6, length of pronotum 22.8, greatest width of pronotum 12.4, length of pronotal shaft 16.7, length of unexpanded portion of shaft 7.3, width of unexpanded portion of shaft 5.7, length of tegmen 56, width of tegminal marginal field 5, length of cephalic femur 17.9, length of caudal femur 18.8 mm.

The type of this handsome insect is unique.

RHOMBODERA Burmeister.

1838. *Rhombodera* Burmeister, Handb. Ent., II, Abth. II, pt. 1, p. 536.
1912. *Rhomboderula* Giglio-Tos, subgenus of *Parhierodula* Giglio-Tos, Bull. Soc. Ent. Italiana, XLIII, p. 130.

Having selected *Rhombodera saussurei* Kirby as genotype of *Rhomboderula* in the present paper, we find this species to be congeneric with *Mantis valida* Burmeister, genotype of *Rhombodera*.[58] The resultant synonymy is indicated above.

[57] The following features of coloration have been extensively used by Giglio-Tos in characterizing the species of *Hierodula* and its allies. In the present group we feel that individual variation occurs in at least some of the species and must be taken into consideration.

[58] Selected by Kirby, Syn. Cat. Orth., I, p. 248, (1904).

We refer to our discussion of the values of the generic characters, used to separate the genera of the Group Hierodulæ, under the group heading on page 51. We there explain our reasons for repudiating Giglio-Tos' rearrangement and the new genera and subgenera which he was obliged to erect after he had decided to consider the smoothness or serrulation of the costal margins of the tegmina of primary importance.

On page 63, under the Tamolana Group of the genus *Hierodula*, we discuss the majority of the species which Giglio-Tos referred to his subgenus *Rhomboderula*.

Rhombodera extensicollis (Serville).

1839. *Mantis extensicollis* Serville, Hist. Nat. Ins., Orth., p. 189. [♂, ♀; Java.]

Samarang, Java, July, 1909, (E. Jacobson), 1 ♂, [Academy of Natural Sciences of Philadelphia].

This specimen agrees fully with Giglio-Tos' diagnosis of *extensicollis*, which species he placed in his subgenus *Rhomboderula* of his genus *Parhierodula*.

Rehn has recorded the present specimen as *Rhombodera flava* (Haan),[59] which species is closely related and may prove a synonym of *extensicollis*, as was indicated by Kirby, but resurrected as valid by Giglio-Tos and placed by that author in *Rhombodera*, which he considered a subgenus of *Hierodula*.

Rhombodera stalii Giglio-Tos.

1877. *H*[*ierodula*] *basalis* Stål, (not *Mantis basalis* Haan, 1842), Bih. till K. Svenska Vet. Akad. Handl., IV, No. 10, p. 21. [Java, Borneo.]

1912. *H*[*ierodula*] *R*[*hombodera*] *stalii* Giglio-Tos, Bull. Soc. Ent. Italiana, XLIII, p. 102. [♂, ♀: southern Java; Tengger Mountains, Eastern Java.]

Nongkodjajar, Java, January, 1911, (E. Jacobson), 1 ♂, 1 ♀, [Academy of Natural Sciences of Philadelphia].

These specimens have been recorded by Rehn as *R. basalis* (Haan).[60] Giglio-Tos has proposed the name *stalii* for a form with narrowed pronotum and apex of cephalic trochanters darkened. The present specimens agree with that author's diagnosis except that they are smaller.

We hesitate to use the name *stalii* for we are by no means convinced that this type will not prove to be a geographic race or even a mere variant of *basalis*, unworthy of nominal recognition.

[59] Notes from Leyden Mus., XXXV, p. 125, (1912).
[60] Notes from Leyden Mus., XXXV, p. 125, (1912).

Length of body ♂ 56, ♀ 64.5; length of pronotum ♂ 20.3, ♀ 23.7; greatest width of pronotum ♂ 11, ♀ 14.7; length of tegmen ♂ 50.2, ♀ 45.5; width of tegminal marginal field ♂ 4.7, ♀ 5.8 mm.

Rhombodera basalis (Haan).

1842. *M[antis]* (*Mantis*) *basalis* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 67. [♀; Krawang, Java.]

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♀.

This is a large specimen; length of body 85, length of pronotum 30, width of pronotum 18.7 mm.

Rhombodera valida Burmeister.

1838. *M[antis]* (*Rhombodera*) *valida* Burmeister, Handb. Ent., II, Abth. II, pt. I, p. 536. [Java.]

Labuan Island, British North Borneo, 1 ♂.

This species is separated by Giglio-Tos from *R. basalis* (Haan) by the broader, sub-circular, rhomboidal pronotum and quadriramose discoidal vein of the tegmina. The material measured by that author does not show as broad a pronotum as does the present specimen, but from study of his paper we are led to believe that the measurement given for pronotal width may not be correct.

The additional ramus of the discoidal vein of the tegmina is clearly a poor specific criterion, noting that the same vein is bi- or tri-ramose in *basalis*, as stated by Giglio-Tos.

As a result we feel that the specific validity of the condition to which the name *valida* is applied is open to question, the position which we take being much the same as stated for *R. stalii* Giglio-Tos in the present paper. We are further strengthened in this opinion by the fact that Giglio-Tos has later described a species, *rotunda*,[61] giving in his meagre comparative description, as differential characters to separate that form from *valida*, the broader pronotum and the fact that the four specimens before him have the cephalic femora with black maculations before the unguicular sulcus. The present specimen agrees closely with Giglio-Tos' measurements for *rotunda*, but has the cephalic femora immaculate.

Length of body 71, length of pronotum 21.6, greatest width of pronotum 16.3, length of tegmen 56, width of tegminal marginal field 4.4 mm.

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[61] Bull. Soc. Ent. Italiana, XLVIII, p. 65, (1917).

Rhombodera saussurei Kirby.

1842. *Mantis* (*Mantis*) *vatida* Haan, (not *Mantis* (*Rhombodera*) *valida* Burmeister, 1838) in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 66. [Timor-Koepang; Amboina.]

1904. *R*[*hombodera*] *saussurei* Kirby, Syn. Cat. Orth., I, p. 248. (New name proposed.)

Obi Island, Moluccas, 1 ♂, 2 ♀.

This handsome species, though agreeing closely with *R. basalis* (Haan) in pronotal form, is clearly a member of a distinct species group, distinguished by the greater definition of the lateral wings of the pronotum from the primitive portion, the distinct and greater serrulation of the pronotal margins, the serrulate costal margin of the tegmina and clear hyaline wings, not tinged with pink as in *basalis* and its closer allies.

The present specimens, in addition, have the stigma buffy without adjacent suffusions of any kind, but this feature would appear to be variable, as Giglio-Tos records specimens from Timor with stigma showing blackish brown suffusions cephalad and caudad, as is characteristic for *basalis*.

From the data given in the literature, the size variation would appear to be considerable. The measurements of the specimens here recorded are: length of body, ♂ 71.5, ♀ 70–75.5; length of pronotum, ♂ 24.1, ♀ 25.2–26.2; greatest width of pronotum, ♂ 15.6, ♀ 17.2–18.3; length of tegmen, ♂ 64.1, ♀ 49.7–50.2; width of tegminal marginal field, ♂ 4.9, ♀ 5.9–6.3 mm.

XXIII. Archimantinæ.

1st Group, Archimantes.

Archimantis latistyla (Serville).

1839. *Mantis latistylus* Serville, Hist. Nat. Ins., Orth., p. 179. [♂, ♀; Australia.]

Queensland, Australia, 2 ♀.

Archimantis armata Wood-Mason.

1877. *Archimantis armatus* Wood-Mason, Ann. Mag. Nat. Hist., (4), XX, p. 76. [♀, North Australia.]

Townsville, Queensland, Australia, 1 ♀.

XXVIII. Acromantinæ.

2d Group, Acromantes.

Oligomantis orientalis Giglio-Tos.

1915. *O*[*ligomantis*] *orientalis* Giglio-Tos, Boll. Mus. Zool. Anat. Comp. Univ. Torino, XXX, No. 702, p. 4. [♂, ♀; Redjang, Sumatra; Island of Batu; Singapore, [British Straits Settlements].]

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂, 1 ♀.

The original description of this interesting species is inexcusably brief. No mention is made of the striking granulations covering the dorsal surface of the pronotum, which, in the female become minute but distinct tuberculations on the collar. The wings are transparent, tinged with a delicate pink, except proximad in the marginal field, where they are tinged with green.

The length of the female tegmen as given by Giglio-Tos, 13.5 mm., is apparently in error, as he states "elytris angustata, abdomine longiora." Probably 23.5 mm. was intended.

The measurements of the pair before us are as follows: length of body, ♂ 22, ♀ 34; length of pronotum, ♂ 8, ♀ 11.8; greatest width of pronotum, ♂ 1.9, ♀ 2.9; length of tegmen, ♂ 14.3, ♀ 23.7; width of tegminal marginal field, ♂ 1.2, ♀ 2; length of caudal femur, ♂ 5.3, ♀ 7.2 mm.

Acromantis moultoni Giglio-Tos.

1915. *A[cromantis] moultoni* Giglio-Tos, Boll. Mus. Zool. Anat. comp. Univ. Torino, XXX, No. 702, p. 5. [♀; Borneo; Darvel Bay, Borneo.]

Sandakan, British North Borneo, (from C. F. Baker), 1 ♂, 1 ♀.

Giglio-Tos' treatment of eight new species, of which *moultoni* is the second, is pitiably superficial and brief, as usual without a single figure. Particularly reprehensible is the fact that in no case is a single transverse dimension given, leaving the reader in complete ignorance as to the slenderness or robustness of the species described.

The male before us has the margin of the suture mesad above the ocelli minutely angulate produced ventrad, as may be expected for this sex of a species of *Acromantis* in which the females have no trace of a tubercle at this point. This specimen very closely resembles the male before us of *A. oligoneura* (Haan), differing in not having a minute but distinct tubercle above the ocelli and in having the oblique portions of the discoidal and median veins of the tegmina more strongly curved toward their bases. The discoidal field of the tegmina is colorless, hyaline, weakly reticulated with green veins, the third and fourth of the oblique veins margined along their proximal portion with a brown suffusion.

The female has no trace of angulate production or tubercle above the ocelli. The discoidal field of the tegmina is colorless, hyaline, with veins similar to those of the male but with the reticulation somewhat smaller and closer and with no suffusions whatever. The

wings are truncate distad, with immediate apices showing very slight production.

It is clear that *moultoni* is very close to *oligoneura* and may prove to be a geographic race. Giglio-Tos' *insularis*, from the superficial description, is apparently even closer to *oligoneura* and may represent a geographic race, but more probably an absolute synonym of that species.

Length of body, ♂ 21.8, ♀ 28; length of pronotum, ♂ 7, ♀ 8.3; greatest pronotal width, ♂ 2.4, ♀ 2.9; length of tegmen, 17.6, ♀ 21.2; width of tegminal marginal field, ♂ 1.4, ♀ 2; width of cephalic femur, ♂ 1.7, ♀ 2.2 mm.

Acromantis oligoneura (Haan).

1842. *M[antis] oligoneura* Haan, in Temminck, Verh. Nat. Gesch. Nederlandsche Overseesche Bezittingen, Orth., p. 90, pl. XVIII, fig. 6. [♂, ♀: Java; Padang; Amboina; Tonda, [Celebes].]

Batavia, Java, June and September, 1908, (E. Jacobson), 1 ♂, 1 ♀, [Academy of Natural Sciences of Philadelphia.]

These specimens have been correctly recorded by Rehn.[62] The measurements are: length of body, ♂ 21, ♀ 26; length of pronotum, ♂ 6.3, ♀ 7.4; greatest width of pronotum, ♂ 2.1, ♀ 2.7; length of tegmen, ♂ 16.2, ♀ 18.8; width of tegminal marginal field, ♂ 1.2, ♀ 2; width of cephalic femur, ♂ 1.7, ♀ 2.1 mm.

Acromantis luzonica new species. (Plate II, figure 4.)

This species agrees with *A. parvula* Westwood[63] in size and in having the apex of the anterior field of the wings arcuate and not showing the truncation indicated to varying degrees in males of the other species known to us. It differs in having no supra-ocellar spine, the pronotal supra-coxal expansion more decided, the tegmina and wings not surpassing the apex of the abdomen, the tegmina with all fields equally tinged with green and subopaque and the distal lobes of the median and caudal femora smaller, scarcely half as wide as the tibiæ.

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[62] Notes from Leyden Mus., XXXV, p. 126, (1912).

[63] One of the most unsatisfactory features of Giglio-Tos' work lies in the fact that in his revisionary studies of the Acromantinæ he has almost invariably failed to give any additional data for previously described species. Under *A. oligoneura* (Haan) he places *A. parvula* Westwood as a synonym, records material from Java and Borneo, but gives no data whatever concerning the specimens recorded or reasons for the synonymy indicated. The fact that the apex of the anterior field of the wings as figured by Westwood shows no truncation whatever causes us to believe *parvula* to be a valid species, which we here recognize. Westwood's description is unsatisfactory, but with his figure far more useful than the descriptions of new species of the genus *Acromantis* given by Giglio-Tos.

Compared with a male of *A. oligoneura* (Haan) before us, the present male is seen to differ widely in its smaller size, decidedly shorter and heavier pronotum with supra-coxal expansion more decided, much shorter tegmina and wings with distal margins showing no truncation, suffused tegmina with cross-veinlets very much more numerous and irregular and differently colored wings with apex of anterior field not distinctly truncate.

The position of the present species in the genus *Acromantis* is somewhat difficult to assign, due to the fact that the male sex of *A. australis* Saussure and the female sex of *luzonica* are unknown. The heavy pronotum and colored wings lead us to believe it to be more closely related to the group including *australis* than to that including the more slender species such as *oligoneura*. It is very possible that it represents a distinct group, in certain features annectant between these, but further material is needed before this can be definitely stated. From comparison with the male of *A. hesione* Stål before us, it is clear that the present species is widely separated from that insect, which is clearly the nearest approach among the species of the *australis* type toward those of the *oligoneura* type.

Type.—♂; Baguio, Benguet, Island of Luzon, Philippine Islands. (From C. F. Baker.) [Hebard Collection Type No. 528.]

Size small and form robust for the genus. Head with supra-ocellar spine subobsolete, represented by a mere rounded node mesad on the transverse carina there formed. Occiput with lateral vertical sulcations alone distinct, the two mesad indicated only as shallow, broad, brief depressions below the summit, summit of occiput not raised above the eyes, nearly transverse, very weakly and broadly concave mesad and very weakly and broadly convex from lateral sulci to eyes. Ocelli not large, distinctly smaller than in this sex of *oligoneura* and not as closely placed, arranged in a triangle slightly wider than high. Pronotum strikingly heavy for the size of the insect, the few blunt teeth on lateral margins of shaft and neck heavy, distinctly heavier than those of *oligoneura;* supra-coxal expansion decided, margins smooth, forming a rounded angulation meso-cephalad, as in *oligoneura*. Tegmina short, not extending beyond apex of abdomen, entirely subopaque, in all fields thickly supplied with a network of minute irregular veinlets; marginal field broad, narrowing gradually to near apex of tegmina; the four oblique veins of the discoidal field straight, not curved at their bases; the apices of the tegmina moderately broadly rounded, but with

curvature at apex more decided than in *oligoneura*. Wings extending as far as tegmina, with apices similar except that the curvature at the apex is slightly broader, these organs distinctively colored. Cerci short, stout, apex acute, joints moderately moniliform. Cephalic coxæ with cephalic margin armed with (six) small, blunt, irregularly placed teeth. Cephalic femora lamellate dorsad, the dorsal margin evenly and weakly convex; ventro-internal margin with spines arranged, as characteristic for the genus, in the following formula, IIIIIIIIIII I, all genicular lobes each armed with a short heavy spine. Cephalic tibiæ with eleven external and eleven and twelve internal spines on the ventral margins. Median and caudal femora dorso-distad each produced caudad in a longitudinal lamella, only two-thirds as wide as tibia, the margin of which is broadly convex.

Head and pronotum cinnamon brown, the latter paling slightly toward ochraceous-tawny dorsad. Tegmina subopaque, immaculate, strongly tinged with ecru-olive (probably much faded from the color in life). Wings tinged with ochraceous-orange, this becoming ochraceous-tawny along costal margin distad in anterior field. Cephalic limbs olive lake, the coxæ and tibiæ suffused with brown, the femora showing traces of two pale transverse bands and with the larger spines of the ventro-internal margins colored as the other spines, the tips alone darkened. Caudal limbs olive lake, the femora heavily suffused with blackish chestnut brown in proximal and distal third and with traces of this color mesad, the tibiæ annulate proximad, mesad and distad with this color, the tarsal joints suffused distad. (The ground color of the limbs is apparently much faded from the color in life.)

Length of body 19.2, length of pronotum 5.9, greatest width of pronotum 2.6, width of pronotal shaft 1.6, length of tegmen 12.3, width of tegmen 4.4, width of tegminal marginal field 1.1, length of cephalic femur 5.8, width of cephalic femur 1.9, height of lamella on caudal femur .4, length of caudal femur 4.9 mm.

The type of this extraordinary little mantid is unique.

Acromantis hesione Stål.

1877. *A[cromantis] hesione* Stål, Ofv. Kongl. Vetensk.-Akad. Förh., 1877, No. 10, p. 38. [♀, Philippine Islands.]

Los Banos, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

Davao, Davao, Island of Mindanao, Philippine Islands, (from C. F. Baker), 1 ♀.

The present species clearly belongs to the group which includes *A. australis* Saussure. This is shown by the robust form and cephalic femora having a dorsal expansion, weak but distinct in the males, conspicuous in the females.

The male before us is apparently an example of recessive coloration. The general coloration is yellowish, the cephalic femora weakly suffused with pale brown meso-distad on their external faces, the other femora suffused proximad and distad with pale brown. The tegmina have the discoidal fields transparent, hyaline, immaculate, with veins yellowish.

The female at hand is similar except that the general coloration is light brown, the cephalic femora dorsad suffused with slightly darker brown proximad, mesad and distad on their external faces. The tegmina have the discoidal fields transparent but heavily and evenly reticulate with innumerable pale brown veins, so that these areas appear only slightly vitreous, with third and fifth oblique veins showing a small but distinct maculation of dark brown about their bases.

Length of body, ♂ 25, ♀ 33; length of pronotum, ♂ 8, ♀ 9; greatest pronotal width, ♂ 2.5, ♀ 3.6; length of tegmen, ♂ 18.8, ♀ 21.9; width of tegminal marginal field, ♂ 1.3, ♀ 2.4; width of cephalic femur, ♂ 2, ♀ 3 mm.

Acromantis australis Saussure.

1871. *Acromantis australis* Saussure, Mélang. Orth., I, p. 449, pl. VII, fig. 68. [♀ : Moluccas; Island of Waigiou.]

Fakfak, Dutch New Guinea, 1 ♀.

This is the only species of the genus before us which has a well developed conical projection above the ocelli; this projection slightly higher but more slender than that at the dorsal apex of the facial scutellum in the female sex. The present specimen has the free margin of the axillary field of the wings tinged with dark brown, as described for Bornean material of *A. aruana* Westwood, a name which has been assigned to synonymy under *australis*.

Length of body 32, length of pronotum 9.3, greatest pronotal width 3.8, length of tegmen 22.8, width of tegmen 7, width of tegmen at apex 4.8, width of tegminal marginal field 2.3, width of cephalic femur 2.9, height of lamella on caudal femur .9 mm.

Acromantis dyaka new species. (Plate II, figure 5.)

This species is the heaviest of the genus, showing the maximum development of pronotal marginal denticulation and femoral lamel-

lation. In addition the tegmina and wings show the most decided distal truncation known.

Nearest relationship is with *A. australis* Saussure, the present female differing from a female of that species before us, in addition to the features stated above, in having the spine above the ocelli minute, very much smaller than the spine above the summit of the facial scutellum, the tegmina with marginal field fully as broad proximad but narrowing sharply in distal third, rather than narrowing very gradually. The free margin of the axillary field of the wings is not tinged with dark brown, agreeing in this respect with all known material of *australis* from Waigiou and the Aru Islands, which marginal suffusion distinguishes, however, all material of that species known from New Guinea.

Type.—Labuan Island, British North Borneo. [Hebard Collection Type No. 527.]

Size large and form very robust for the genus, generally similar to *australis* except in the following respects. Head with supra-ocellar spine represented by a minute blunt projection less than half as high as the spine at the dorsal apex of the facial scutellum, which spine is as well developed as in *australis*. Occiput with four deep and broad vertical sulcations; summit of occiput slightly raised above the eyes, transverse, weakly convex from lateral sulci to eyes. Ocelli small, slightly smaller than in this sex of *australis*, similarly arranged in a triangle which is distinctly wider than high. Pronotum similar to that of *australis* except that it is shorter and heavier with the blunt teeth on the lateral margins fewer in number but decidedly heavier and longer. Tegmina as in that species but suddenly and broadly truncate distad, almost as if the distal quarter of a tegmen, such as is developed in *australis*, had been clipped off; marginal field very broad in proximal two-thirds, suddenly narrowing so that it is obsolete in the greater portion of the distal third; marginal field opaque, dorsal field transparent but with a heavy network of minute veins, which become so numerous and crowded toward the marginal field, and particularly toward the bases of the oblique veins, as to cause these portions to be almost opaque. Wings with anterior field sharply truncate, hardly reaching beyond apex of axillary field, portion of anterior field between mediastine vein and free margin opaque along the distal portion of the anterior field; axillary field transparent, very weakly tinged with brown. Cephalic coxæ with cephalic margin armed with (six) heavy blunt

teeth, between which are a number of minute denticulations. Cephalic femora lamellate dorsad, this somewhat strongest mesad, the dorsal margin minutely denticulate; ventro-internal margin with spines arranged as follows, IIIIIIIIIII I, as characteristic of the genus, all genicular lobes each armed with a short heavy spine. Cephalic tibiæ with eleven and twelve procumbent external and twelve internal spines on the ventral margins. Median and caudal femora dorso-distad each produced caudad in a large rounded lamella, similar to those developed in *australis*, but distinctly more ample.

Head tawny olive. Pronotum sepia laterad, fading to cinnamon-buff mesad particularly on shaft, with teeth of lateral margins black. Tegmina with marginal field opaque, turtle green; other portions hyaline with a network of tawny olive veins as given in description, with a suffusion of warm sepia about base of third oblique vein. Wings hyaline very faintly tinged with ochraceous-tawny, except along free margin of anterior field distad where they are opaque, antimony yellow shading through tawny to prout's brown at apex, the tawny and prout's brown portions spreading over the distal extremity of the anterior field. Limbs prout's brown; teeth of cephalic coxæ buffy; internal faces of cephalic femora tawny; second and third discoidal spines black proximad and distad, larger spines of ventro-internal margin entirely black, this extending on the limb as a suffusion at the base of each of these spines; dorsal margin of cephalic femora, internal face of cephalic tibiæ and median and caudal femora and tibiæ each with two very pale brown areas, tarsal joints pale with apices darkened.

Length of body 28.5, length of pronotum 8.7, greatest pronotal width 4, length of tegmen 19, greatest tegminal width 7, width of tegmen at apex 6.7, width of tegminal marginal field 2.2, length of cephalic femur 8.8, width of cephalic femur 2.8, length of caudal femur 7.7, height of lamella on caudal femur 1.2 mm.

The type is unique.

Odontomantis javana javana Saussure.

1870. *M[icromantis] Odontomantis javana* Saussure, Mélang. Orth., I, p. 181. [♀, Java.]

Sandakan, British North Borneo, (from C. F. Baker), 2 ♂, 3 ♀.

Labuan Island, British North Borneo, 1 ♂, 2 ♀.

Puerto Princesa, Island of Palawan, Philippine Islands, (from C. F. Baker), 1 ♀.

Measurements (in millimeters).

♂	Length of body.	Length of pronotum.	Greatest width of pronotum.	Length of tegmen.
Sandakan, Borneo	16.7	4.6	2.1	11.3
Sandakan, Borneo	15	4.2	2	10
Labuan Island, Borneo	14.7	4.2	2	11.2
♀				
Puerto Princesa, Palawan	23	6.1	3	16.6
Sandakan, Borneo	23.7	6	2.9	17
Labuan Island, Borneo	24.4	5.8	2.8	17.3

Odontomantis javana euphrosyne Stål.

1877. *O[dontomantis] euphrosyne* Stål, Ofv. Kongl. Vetensk.-Akad. Förh., 1877, No. 10, p. 38. [♂, ♀; Philippine Islands.]

Davao, Davao, Island of Mindanao, Philippine Islands, (from C. F. Baker), 2 ♂.

These specimens agree fully with Stål's meagre description of *euphrosyne*, which is briefly characterized as being larger with distal portion of anterior field of wings less produced and blunter than in *javana*. We note also that these specimens, when compared with Bornean males of *javana*, have the collar of the pronotum slightly more elongate, distinctly longer than the width at the supra-coxal sulcus; the anterior field of the wings distinctly more suffused than the other portions, not equally suffused, and the dorsal surface of the cerci, supra-anal plate and preceding segment suffused with blackish brown, not of the general coloration of the dorsal surface of the abdomen.

No other differences of any diagnostic value are found and we believe that *euphrosyne* represents a geographic race of *javana*.

Measurements (in millimeters).

♂	Length of body.	Length of pronotum.	Greatest width of pronotum.	Length of tegmen.	Length of caudal femur.
Davao, Mindanao	18.5	5.2	2.3	12.2	5.7
Davao, Mindanao	20	5.7	2.5	12.8	5.9

XXIX. Hymenopodinæ.

5th Group, Hymenopodæ.

Hymenopus coronatus (Olivier).

1792. *Mantis coronatus* Olivier, Encycl. Méthod., VII, p. 638. [[♀ and juv.], Amboina.]

Nias Island, Sunda Archipelago, 1 ♀.

This specimen exactly resembles the excellent figure of this most remarkable pale yellowish mantid given by Stoll.

Creobroter granulicollis Saussure. (Plate II, figure 6.)

1870. *Cr[eobotra] granulicollis* Saussure, Mittheil. Schweizer Ent. Ges., III, p. 242. [♀, Siam?]

Singapore, British Straits Settlements, Malay Peninsula, (from C. F. Baker), 1 ♂.

Kirby has given Penang, British Straits Settlements, as the type locality for this species. We are unable to locate the source of his information.

The species was described from a female, but from the minute tubercle above the ocelli and moderately granulate pronotal surface we feel that the present association is correct.

This specimen is compared with a male of *C. meleagris* Stål as to the eyes, under the discussion of that species. We would further remark that the pronotum is regularly oval rather than quadrilobate in form. The tegmina are transparent, hyaline, very weakly tinged with green, except proximad in the discoidal field, where this becomes stronger; with a very brief (1.8 mm. in length) transverse band of mustard yellow, bordered proximad by a black line at the end of the proximal third of the discoidal field.

Length of body 23, width of head 4.4, length of eye 2.8, length of pronotum 5, greatest width of pronotum 3, length of tegmen 21, width of tegmen 5.2, width of tegminal marginal field 1.3, length of abdomen 9.2, width of abdomen 5.1, length of cephalic femur 6.5, length of caudal femur 6.1 mm.

Creobroter labuanae new species. (Plate II, figure 7.)

The present species appears to find nearest affinity with *C. meleagris* Stål. Compared with a male of *meleagris*[64] before us, the present male is found to differ in its somewhat smaller size, eyes which do not project as strongly, smaller pronotum, which is weakly granulate, with neck proportionately shorter and the margins of the neck, shaft and supra-coxal expansion all four showing about the same convexity. In addition the tegminal markings are much smaller, yellow, not orange, with the discal spot showing only a brief transverse black band which sends a short ray into the yellow area. These features of coloration may be variable within the species of the genus, however, and in the present case the differ-

[64] As noted under *meleagris*, lack of material of *C. urbana* (Fabricius) prevents comparison, which species, from the literature, appears to be more nearly related to *C. granulicollis* (Saussure) in pronotal form, with lateral margins more evenly expanding and in consequence decidedly less cruciform, though agreeing with *labuanae* and *meleagris* in having a well developed spine above the ocelli.

ences noted may be due wholly to individual recession of coloration from a type exactly similar to that shown by the male of *meleagris* at hand.

As in many genera including strikingly colored species, it is clear that features of coloration, some of which are unquestionably of doubtful specific diagnostic value, have been unduly emphasized in past literature, while a number of important structural characters have been overlooked or given but scant attention.

Type.—♂; Labuan Island, British North Borneo. [Hebard Collection Type No. 526.]

Size medium for the genus, tegmina and wings very elongate, proportionately much as in *meleagris* and considerably longer than in *granulicollis*, though the pronotum is decidedly smaller than in *meleagris* and of much the same size as in *granulicollis*.[65] Head with eyes greatly projecting, as characteristic for the genus, but distinctly less than in this sex of *meleagris* or *granulicollis*. Spine above ocelli well developed, as in *meleagris*. Pronotum[66] with dorsal surface feebly granulate; lateral margins very slightly roughened, denticulations obsolete except faintly indicated on cephalic margins of supra-coxal expansion, much as in *granulicollis*, slightly weaker than in *meleagris;* margins of neck, shaft and supra-coxal expansion all equally convex, giving the pronotum a more cruciform shape than in *meleagris*, which shape is practically lost in *granulicollis;* neck short, no longer than its proximal width. Tegmina and wings elongate, proportionately slightly narrower than in *meleagris*, of same proportions as in *granulicollis*, but more extensive in proportion to body bulk than in that species. Wings with a proximal suffusion of deep vinaceous, as in *granulicollis* and *meleagris*, markings of a much reduced but similar pattern to those of *meleagris*. Ninth dorsal abdominal segment with latero-caudal angles moderately produced and bluntly rounded, similarly produced but acute in *meleagris*, more decidedly produced and acute in *granulicollis*. Supra-anal plate with margin between the cerci broadly convex. Cerci moderately stout, tapering sharply at extremity to acute apex, in *meleagris* tapering more gradually distad

[65] Males of these species are compared. We have no material to show the differences which exist between the sexes in the various structural and color features.

[66] From Saussure's description of the female sex of *granulicollis*, we believe that the pronotum in females of these species will be found to be more heavily granulate, with margins distinctly denticulate.

to the acute apex. Styles of subgenital plate minute, hardly twice as long as wide, in *meleagris* minute but fully three times as long as wide. Cephalic femora with ventro-internal margins showing the following spine formula, IIIIIIIIIIIIIII, the five small successive spines decreasing in length distad with intervals diminishing, as characteristic of the genus. Cephalic tibiæ with thirteen and fourteen procumbent external and thirteen and fourteen internal spines on the ventral margins. Median and caudal femora dorso-distad each produced caudad in a lamella which is slightly wider than the caudal tibia.

Color pattern exactly as in *meleagris* except for the absence of the two pale transverse bands found on the pronotum in that species and the reduction of the tegminal markings. Head cinnamon brown, with margins of facial scutellum and proximal antennal joints antimony yellow. Antennæ proximad antimony yellow, then briefly cinnamon brown, the entire remaining portions blackish brown. Pronotum cinnamon brown with denticulations and marginal portions, particularly laterad, antimony yellow. Limbs antimony yellow, femora and tibiæ and cephalic coxæ each with three transverse annuli of equal width which are cinnamon brown, all femora distad and cephalic coxæ in addition suffused proximad with cinnamon brown; cephalic metatarsus suffused with cinnamon brown mesad and distad, other metatarsi suffused with cinnamon brown distad, remaining tarsal joints suffused with this color. Tegmina transparent, tinged with green, this heavy proximad, a small spot at base of discoidal field and a comparatively small transverse oval area before the middle of the discoidal field mustard yellow, the latter bounded proximad by a black line which sends one short ray of black into the yellow area; extensor field clear hyaline, colorless. Wings transparent, hyaline, colorless except proximad where they are briefly tinged with dark vinaceous and distad in the anterior field where they are tinged with green, particularly toward the margins.

Length of body 23.5, width of head 4.3, length of eye 2.3, length of pronotum 4.7, greatest pronotal width 3.3, length of tegmen 25, width of tegmen 6, width of tegminal marginal field 1.2, length of abdomen 9.4, greatest abdominal width 5.5, length of cephalic femur 6.8, length of caudal femur 6 mm.

The type of this beautiful little species is unique.

Creobroter meleagris Stål. (Plate II, figure 8.)

1877. *C[reoboter] meleagris* Stål, Ofv. Kongl. Vetensk.-Akad. Förh., 1877, No. 10, p. 39. [♂, ♀; Philippine Islands.]

Los Banos, Laguna, Island of Luzon, Philippine Islands, (from C. F. Baker), 1 ♂.

This specimen agrees fully with Stål's brief description. The species appears to be close to *C. urbana* (Fabricius), but how close we are unable to state, lacking material of that species for the necessary comparison.

In the male before us the eyes project strongly, though not as slender and more divergent than those of the male of *C. granulicollis* Saussure at hand. The conical spine above the ocelli is well developed, the pronotum with surface subgranulate and distinctly quadrilobate in form, the tegmina with proximal spot and ocellate area bittersweet orange, the latter with two black dots proximad, bounded proximad by a broad arcuate black line, distad by a hyaline margin with a similar broad arcuate black line bounding it, the extensor field hyaline, colorless except for a large mesal suffusion of blackish brown.

Length of body 26, width of head 5, length of eye 2.9, length of pronotum 6.1, greatest pronotal width 3.9, length of tegmen 26.8, width of tegmen 6.9, width of tegminal marginal field 1.7, length of abdomen 10, greatest abdominal width 6, length of cephalic femur 9, length of caudal femur 8.7 mm.

Creobroter episcopalis Stål.

1877. *C[reoboter] episcopalis* Stål, Bih. till K. Svenska Vet. Akad. Handl., IV, No. 10, p. 86. [♀, Borneo.]

Labuan Island, British North Borneo, 1 ♀.

This specimen agrees fully with Stål's description, except that it is larger than the type. The sharply conical eyes, lack of spine or denticulation above the ocelli, granulose surface of the pronotum and tegminal markings are particularly noteworthy features.

Length of body 30, length of pronotum 6, greatest pronotal width 3.8, length of tegmen 19.5, width of tegminal marginal field 1.8, length of cephalic femur 7.9, length of caudal femur 6.5 mm.

6th Group, Pseudocreobotræ.

Theopropus elegans (Westwood).

1832. *Blepharis elegans* Westwood, in Griffith, Anim. Kingd., XV, p. 190, pl. LXXVIII, fig. 3. [♀; Tanesserim [error for Tenasserim] Coast.]

British North Borneo, (from Fruhstorfer), 1 ♀.

Sandakan, British North Borneo, (from C. F. Baker), 1 ♀.

Labuan Island, British North Borneo, 1 ♀.

The three specimens of this remarkable species here recorded all agree closely in size, coloration and color pattern.

Explanation of Plates.

Plate I.—Fig. 1.—*Kongobatha diademata* new species. Queensland, Australia. Female. *Type*. Cephalic aspect of head. (×7.)

Fig. 2.—*Kongobatha diademata* new species. Queensland, Australia. Female. *Type*. Latero-external outline of cephalic tibia. (×10.)

Fig. 3.—*Polyacanthopus mantispoides* new species. Sandakan, British North Borneo. Male. *Type*. Cephalic aspect of head. (×7.)

Fig. 4.—*Polyacanthopus mantispoides* new species. Sandakan, British North Borneo. Male. *Type*. Latero-external outline of cephalic limb. (×6.)

Fig. 5.—*Sceptuchus simplex* new species. Singapore, British Straits Settlements. Male. *Type*. Cephalic aspect of head. (×7.)

Fig. 6.—*Sceptuchus simplex* new species. Singapore, British Straits Settlements. Male. *Type*. Latero-external outline of cephalic tibia. (×10.)

Fig. 7.—*Amantis aeta* new species. Mount Banahao, Luzon, Philippine Islands. Male. *Type*. Cephalic aspect of head. (×7.)

Fig. 8.—*Amantis basilana* new species. Island of Basilan, Philippine Islands. Male. *Type*. Cephalic aspect of head. (×7.)

Fig. 9.—*Amantis basilana* new species. Island of Basilan, Philippine Islands. Male. *Type*. Latero-external outline of cephalic tibia. (×10.)

Fig. 10.—*Tagalomantis manillensis* (Saussure). Los Banos, Luzon, Philippine Islands. Male. Latero-internal aspect of cephalic femur. (×5.)

Fig. 11.—*Leptomantis tonkinae* new species. Than-Moi, Tonkin. Female. *Type*. Dorsal view of pronotum. (×6.)

Fig. 12.—*Leptomantis tonkinae* new species. Than-Moi, Tonkin. Female. *Type*. Latero-external outline of cephalic tibia. (×10.)

Fig. 13.—*Aetaella bakeri* new species. Mount Makiling, Luzon, Philippine Islands. Male. *Type*. Dorsal view of pronotum. (×6.)

Fig. 14.—*Aetaella bakeri* new species. Mount Makiling, Luzon, Philippine Islands. Male. *Type*. Latero-external outline of cephalic tibia. (×10.)

Plate II.—Fig. 1.—*Hierodula obiensis* new species. Obi Island, Moluccas. Female. *Allotype*. Dorsal aspect. (Natural size.)

Fig. 2.—*Hierodula obiensis* new species. Obi Island, Moluccas. Male. *Type*. Dorsal aspect. (Natural size.)

Fig. 3.—*Hierodula splendida* new species. Haidana, British New Guinea. Male. *Type*. Dorsal aspect of head and pronotum. (×1½.)

Fig. 4.—*Acromantis luzonica* new species. Baguio, Luzon, Philippine Islands. Male. *Type*. Dorsal aspect of pronotum. (×4½.)

Fig. 5.—*Acromantis dyaka* new species. Labuan Island, British North Borneo. Female. *Type*. Dorsal aspect. (×2.)

Fig. 6.—*Creobroter granulicollis* Saussure. Singapore, British Straits Settlements. Male. Dorsal aspect of pronotum. (×4½.)

Fig. 7.—*Creobroter labuanae* new species. Labuan Island, British North Borneo. Male. *Type*. Dorsal aspect of pronotum. (×4½.)

Fig. 8.—*Creobroter meleagris* Stål. Los Banos, Luzon, Philippine Islands. Male. Dorsal aspect of pronotum. (×4½.)

Fig. 9.—*Amantis aeta* new species. Mount Banahao, Luzon, Philippine Islands. Male. *Type*. Dorsal aspect of pronotum. (×8.)